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2d Session

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HEALTH IN THE AMERICAS AND THE PAN AMERICAN HEALTH ORGANIZATION

PROGRAM OF THE PAN AMERICAN HEALTH ORGANIZATION AND THE WORLD HEALTH ORGANIZATION IN THE AMERICAS

PREPARED FOR THE

COMMITTEE ON GOVERNMENT OPERATIONS
UNITED STATES SENATE

AND ITS

SUBCOMMITTEE ON REORGANIZATION AND INTERNATIONAL ORGANIZATIONS

(PURSUANT TO S. RES. 347, 85TH CONGRESS, AND S. RES. 42 AND 255, 86TH CONGRESS)

MAY 9, 1960

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LETTER OF TRANSMITTAL

U.S. SENATE,
May 9, 1960.

Hon. JOHN J. MCCLELLAN,
Chairman, Senate Committee on Government Operations,
Senate Office Building, Washington, D.C.

MY DEAR MR. CHAIRMAN: For the information of the subcommittee and of the Senate, there is submitted herewith a publication entitled, "Health in the Americas and the Pan American Health Organization".

This is the ninth in a series of publications issued by this subcommittee as part of its international health study. The eight previous publications in the series are listed on the page which follows.

Each of these publications has been compiled by the staff at my request in cooperation with various authorities. Our purpose has been to fulfill the survey mission which the Senate conferred upon us. The original resolution which authorized the study was Senate Resolution 347, 85th Congress (as extended by S. Res. 42 and 255, 86th Cong.). Senate Resolution 347 provided for a complete study—

* * * of any and all matters pertaining to international health research, rehabilitation and assistance programs * * * and * * * the coordination of programs related to international health.

Under rule XXV of the Standing Rules of the Senate, the Committee on Government Operations is entrusted with the responsibility of—

Budgeting and accounting measures other than appropriations * * *
Studying intergovernmental relationships * * * between the United States and international organizations of which the United States is a member.

In accordance with this authority, the fourth committee print in this series was devoted to the World Health Organization.

The present print concentrates on the work of the Pan American Health Organization which serves as regional organization for the Americas of the World Health Organization.

In the 1960 fiscal year, the United States contributed $5.8 million to the PAHO–WHO budget for health activities in Latin America.

This print shows (*a*) how these and other funds were spent and (*b*) the problems which lie ahead.

The print consists of a report by the Pan American Health Organization to the subcommittee. Its publication by the subcommittee is not intended to convey policy conclusions by the subcommittee itself; rather, it is intended to provide a factual framework for the subcommittee's future review.

Only in the final report, after the completion of the present series, will the subcommittee present its own conclusions.

With kindest wishes, I am,

Sincerely yours,

HUBERT H. HUMPHREY,
Chairman, Subcommittee on Reorganization
and International Organizations.

PREVIOUS PUBLICATIONS IN THIS SERIES

There follows:

A. A list of the eight publications previously issued;

B. Within the list, brief references to pages bearing upon health in Latin America, as contained in the eight publications;

C. An enumeration of the overall purposes of the subcommittee in compiling these and future publications.

A AND B. EIGHT PREVIOUS PUBLICATIONS AND THEIR REFERENCES TO LATIN AMERICA

Committee Print No. 1 (S. Rept. 160, 86th Cong.) was entitled "International Medical Research—A Compilation of Background Materials" (117 pp.). It set forth highlights of international research contributions in most of the major fields of disease, in addition to fulfilling other background purposes.

Commencing on page 102, it listed research grants during the 1958 fiscal year by the National Institutes of Health to foreign scientists. Among the nations covered were Argentina, Brazil, Chile, Colombia, Guatemala, Mexico, Panama, and Peru.

Committee Print No. 2 was entitled "Statutory Authority for Medical and Other Health-Related Research in the U.S. Government —The Basis for International Cooperation" (66 pp.). It contained the texts of the legal authority for medical research efforts by diverse agencies of the U.S. Government.

Committee Print No. 3 (S. Rept. 161, 86th Cong.) was entitled "The Status of World Health—In Outline Text and Chart" (81 pp.). Within it were presented charts on the incidence of certain major diseases throughout the world.

Many of the charts included information on Latin America.

Committee Print No. 4 was entitled "The United States and the World Health Organization—Teamwork for Mankind's Well-Being" (145 pp.). It represented the personal report of the chairman of the subcommittee, on WHO, based upon conferences with its officials and other authorities in Europe and on subsequent review.

It referred in various parts to the role of the regional office for the Americas (PAHO)—e.g., pages 127 and 142.

On pages 30 and 31, it listed the problems of infectious disease in the Americas and attempted to show a sample of priority requirements in meeting the problems.

Committee Print No. 5 (S. Rept. 1009, 86th Cong.) was entitled "Cancer—A Worldwide Menace; Some Facts and Figures on Its Incidence in the United States and Abroad" (40 pp.). It presented text and charts on the patterns of occurrence of malignant neoplasms in different countries of the world.

Committee Print No. 6 was entitled "Patterns of Incidence of Certain Diseases Throughout the World—Opportunities for Research

Through Epidemiology" (54 pp.). It summarized epidemiological leads on important chronic and degenerative diseases in various nations. These leads, if followed carefully, may provide insight in the chain of discovery as to the cause and cure of maladies.

Committee Print No. 7 was entitled "The National Science Foundation and the Life Sciences" (96 pp.). It summarized the activities in basic research on the part of this agency, as related to the healing arts.

Committee Print No. 8 (S. Rept. 1038, 86th Cong.) was entitled "Rehabilitation of the Disabled in 37 Countries of the World—Domestic Programs and International Activities in Technical Assistance" (153 pp.). It highlighted the status of rehabilitation programs in 37 selected countries, including Argentina, Brazil, Chile, Colombia, Ecuador, El Salvador, Guatemala, and Uruguay.

C. FIVE PURPOSES OF COMMITTEE PUBLICATIONS

The above-listed publications are obviously diverse in content. But there is a unity in their purpose. The overall pattern of the publications is fivefold. Of course, this pattern will be most clear when the entire series has been released.

However, let it be noted that the initial group of publications fits into the pattern as follows:

(*a*) A principal purpose of the series is, of course, to *document precisely what agencies of the U.S. Government are now doing in the field of international medical research and international medical assistance*, how much they are spending, where, when, how, and why.

Thus, Committee Print No. 1, "International Medical Research," documented the activities of the National Institutes of Health in the international area.

Committee Print No. 2, "Statutory Authority," sets forth the legal framework within which Federal Government agencies now operate.

Committee Print No. 5, "Cancer," indicated some of the activity of the National Cancer Institute of the National Institutes of Health.

Committee Print No. 6, "Epidemiology," indicated activities in the epidemiological field on the part of the Public Health Service and other U.S. units such as the Armed Forces Epidemiological Board.

(*b*) A second purpose of the series is to *document the activities of the intergovernmental organizations of which the United States is a member.*

Thus, Committee Print No. 1, "International Medical Research," showed among other phases some of the activities of the World Health Organization and the United Nations Educational, Scientific, and Cultural Organization.

Committee Print No. 4 was devoted exclusively to the World Health Organization.

Committee Print No. 6, "Epidemiology," cited the activities of WHO in this field.

Committee Print No. 9 (PAHO), the present print, is exclusively devoted to this multilateral organization of which the United States is a member.

(*c*) A third purpose of the series is to *identify the nature of diseases, particularly for purposes of understanding by laymen.*

The subject matter of this Senate inquiry is of course highly technical. The subcommittee is therefore anxious to make every possible effort to make this subject as understandable as possible.

Therefore, Committee Print No. 4 on WHO enumerated the various diseases throughout the world.

Committee Print No. 5, "Cancer," identified the nature of the worldwide problem of malignant neoplasms.

Committee Print No. 6, "Epidemiology," once again set forth introductory facts on the nature of certain leading diseases—cancer, cardiovascular ailments, mental and neurological disorders, arthritis, diabetes, etc.

(*d*) The subcommittee is anxious, also, to *document the activities* of *nonofficial organizations*—voluntary health agencies, religious and nonsectarian medical aid organizations, foundations, institutes, universities, medical schools, specialized medical organizations, biological and chemical groups and others.

(*e*) Finally, our most important purpose is to *develop helpful findings for the Senate, as prescribed within the legislation which created the study.*

Raw material for these findings is contained in each of the reports issued to date and in the remainder of the series, up to the final report. Until issuance of that particular report the substantive and detailed conclusions of the members of the subcommittee will not be formally expressed.

FOREWORD

By Hon. Hubert H. Humphrey, Chairman, Subcommittee on Reorganization and International Organizations

This is a factual report on the health of the peoples of the Americas. In particular, it is devoted to a summary of the problems of well-being of the more than 192 million people of Middle America and South America.

The report was compiled at the invitation of this subcommittee by the organization most qualified to prepare such a review—the Pan American Health Organization.

This intergovernmental organization is the oldest international health organization in existence. It is the largest specialized agency of the Organization of American States. Its secretariat, the Pan American Sanitary Bureau, is also the regional office of the World Health Organization for the Americas.

OUR PRIDE IN PAHO

The Pan American Health Organization is no stranger to the people of the United States. The Organization has been located in our Nation's Capital since its founding in 1902.

But the interest of our people is due to deeper reasons than the presence of PAHO here, as proud as we are to have its Secretariat in our midst. Our interest is based on all that PAHO so worthily represents.

PAHO is a living fulfillment of the highest ideals common to the peoples of the Americas.

The ideals are genuine neighborliness through mutual service and teamwork.

These ideals are carried out by the Organization of American States as a whole—through political, economic, social, cultural, and other cooperation. Inevitably, however, the ideals find their most dramatic fulfillment in the field of cooperation in health, as through PAHO.

UNIVERSAL LANGUAGE OF MEDICINE

Medicine still speaks the most universal language. All barriers tend to fall before mutual dedication to service of human life. We and our good neighbors may speak English or Spanish, Portuguese or French, but our physicians speak a common tongue. It is a universal language of deeds that heal. So do our nurses, dentists, pharmacists, therapists, sanitary engineers, and other specialists—each in their service to the well-being of men, women, and children.

The more than 242,000 physicians of Northern America[1] and the more than 100,000 physicians of Latin America are the "front line" fighters in a "war" in which all humanity is on the same side. It is a

[1] For delineation of countries included in Northern and Latin America, in this publication, see p. 9.

"war" for life and against death, for happiness and against misery, for hope and against despair.

The victims of this "war" may be anyone—anywhere—anytime. And their suffering speaks eloquently to all who would listen. The crying of a sick undernourished child in a hut, pueblo, apartment, or house, in any land, needs no translation to anyone with compassion.

PURPOSES OF REPORT

Here are the facts and statistics on where we of the Americas stand in health as of the start of 1960.

The report summarizes the record of the past and the present and attempts to scan the future. It is designed to serve the information needs of the U.S. Congress.

Simultaneously, however, the subcommittee knows that the report will be of interest to the governments and peoples of the hemisphere as a whole.

This subcommittee, therefore, is glad to cooperate in the broadest possible distribution of the report. It does so with the hope that the report may serve as a source of insight to the present and the past and as a stimulus to the future.

A PERSONAL SUMMARY

Each individual reader of the report will naturally view it from his or her particular perspective. Each will tend to find topics which are of particular interest.

For myself, I may summarize my own reactions as follows:

This report should be a source of great pride. It should also be a source of great challenge.

It seems to me that we of the Americas have every reason to take pride in the enormous progress reflected within the pages which follow. Facts herein reflect the achievements of 22 separate and independent nations. By individual and mutual efforts, these countries have made rapid strides in better serving the interests of all the people of the Americas. They have slashed communicable diseases. They have improved maternal and child health. They have prolonged life.

ASSISTANCE FROM THE UNITED STATES

In this process, the Government of the United States has been glad to be of help. It has made substantial contributions to most of the multilateral funds that have allocated substantial support to health projects in many Latin American countries. In addition, it has provided bilateral assistance to many cooperative health and sanitation projects through official U.S. programs. The latter include programs of the past, such as those of the Institutes of Inter-American Affairs, and of the present, such as the International Cooperation Administration, and always, the U.S. Public Health Service. Our generous contributions to UNICEF and to the PAHO Special Malaria Fund, as well as expenditures through ICA, have made possible impressive progress in malaria eradication in many countries. These countries, because of their shortage of foreign exchange, could otherwise not have imported the necessary insecticides and equipment for this vast program.

U.S. FINANCIAL ASSISTANCE

We may note at this point the exact sums made available by the United States for multilateral programs in Latin America.

The following budget table will be helpful in understanding these expenditures.

(Careful note should be taken of the paragraph which cites the difference in accounting under the respective fiscal years of WHO–PAHO and of our own Government.)

U.S. CONTRIBUTIONS FOR MULTILATERAL HEALTH ACTIVITIES IN THE AMERICAS, IN UNITED STATES FISCAL YEAR 1960

(The Pan American Health Organization and the World Health Organization operate on a *calendar* fiscal year (January 1–December 31). U.S. contributions in U.S. fiscal year 1960 (July 1, 1959–June 30, 1960) are budgeted by the United States for use in PAHO fiscal years as follows: (1) For regular programs of PAHO and WHO, in PAHO fiscal year *1959*; (2) for malaria, water, and U.N. technical assistance, in PAHO fiscal year *1960*.)

Type of program	1959 PAHO/WHO budget estimate total	U.S. contribution, U.S. fiscal 1960	
		Amount	Percent
Total	$10,387,387	$5,802,999	55.9
1. Regular program of PAHO supported by assessed contributions on member governments (including malaria program of $82,001)	3,500,000	2,310,000	66.0
Regular program of the World Health Organization assigned to the Americas	1,613,817	511,560	31.7
Regular program of the United Nations technical assistance funds assigned to the Americas (including malaria program of $210,444)	1,144,080	457,632	40.0
Other funds of the PAHO (grants from governments, foundations, etc., principally for research; excluding malaria)	1,115,420	323,787	29.0
2. Malaria:			
Voluntary contributions to the special malaria fund of PAHO	2,814,070	[1] [814,070] 2,000,000	100.0
UNICEF (cited here for information only)	[4,563,000]	[2,281,500]	50.0
3. Special community water supply fund, voluntay contributions	200,000	200,000	100.0

[1] From prior years.

LARGER LATIN AMERICAN EXPENDITURES

The preceding table should be read in the light of this fact:

The Latin American governments are spending for their own health programs an estimated 100 times the amount contributed by the United States to *multilateral* agencies for health in the Americas. In 1957, the most recent year for which information is available to PAHO, the equivalent of at least $500 million was spent by the Latin American governments for health services. This figures does not include all *state* and *local* governmental expenditures.

Included in the total for 1957 is $20 million which the governments spent for the high priority purpose of malaria eradication. In 1959, their expenditures for malaria eradication increased to 28 millions.

U.S. expenditures under bilateral programs are, as stated, not included in the preceding table nor in the above paragraph. A future subcommittee publication will set forth the separate sums involved in U.S. bilateral programs of assistance (through the International Cooperation Administration).

OTHER PHASES OF INTEREST

Indicative of further U.S. interest is the following fact: The Congress of the United States has just completed action on legislation (Public Law 86–395), authorizing the acquisition of a tract of land in Washington, and its donation to PAHO, to be used as a site for a new headquarters building, to be financed by PAHO from its regular budget.

Another symbol of U.S. interest has been the generous contributions of its voluntary—that is, private—organizations, including foundations, to the health of the hemisphere.

As befits a common cause, however, improved health standards have benefited from common efforts by all the nations. There is no nation, however small or modest its income, which has failed to make its contribution.

THE CHALLENGE AHEAD

But major challenges persist. They may be considered more acute than ever, for in this age of science we can least of all tolerate scourges against which we have long since possessed the means of conquest. Today, there is far less "inevitability" to pain, suffering, and premature death; in many instances, they are, thanks to modern know-how, often largely needless and avoidable.

Diarrheal diseases, to cite one example, present comparatively few unsolved questions to modern science. However, in some areas of Latin America, these particular diseases are killing children under 5 years of age at a rate 60 times that for children in the United States. (See p. 41.) Obviously, it is not that science does not know the answers; it is that the means are not always available to apply the answers.

The plain fact is that medical resources are insufficient in Latin America. Medical, material, financial resources are disproportionately low in relation to the demands facing our neighbors today and shaping up in the years ahead. Education and training needs are particularly urgent.

What is the answer?

That is the question confronting each and every one of the nations of the Americas.

So far as the policy of the United States is concerned, the future response is dependent upon decisions by both the executive and legislative branches.

How the U.S. Congress may choose to react to this challenge is naturally the decision of the various committees of the Congress with jurisdiction in this field. In the Senate, these committees are, principally, the Committee on Foreign Relations and the Committee on Appropriations.

How the respective Latin American nations choose to respond to this challenge is, in turn, their individual responsibility and prerogative.

TRIBUTE TO PAHO

In any event, the Pan American Health Organization is the instrument of all. The effectiveness of this instrument has been confirmed by over a half century of successful service. The need for further resources is one which merits the most sympathetic review.

So far as the past record is concerned, the Pan American Health Organization, in my personal judgment, has definitely discharged its obligations in a manner which reflects high credit on the nations of the hemisphere, on the medical and auxiliary professions, and on the peoples of the Americas.

Much of the credit is properly attributable to the dedicated personnel of PAHO. This includes notably men who have filled the high post of Director, including the incumbent, Dr. Abraham Horwitz, and his distinguished predecessor, Dr. Fred Soper. It also includes the men and women on the staff who, known and unknown, have often pioneered in health measures which have won the respect and admiration of authorities and peoples in many areas beside the New World.

OPPORTUNITIES FOR RESEARCH

Perhaps the brightest stories are still to be written. New opportunities beckon. One such opportunity is in the field of research. (See pp. 71–75 ff.) Here, Latin America offers to its friends to the north the chance to discover new knowledge through expanded scientific teamwork. Research clearly benefits all. Research embodies the two-way flow of ideas and skills, hypotheses, and findings. It is, however, in my personal view, but one of the symbols of this all-pervasive fact: We of the Americas can best advance together, prosper together, be healthier together.

Fate has linked us in geography. The day of the jetplane has linked us in time. Mutual interest has linked us in teamwork.

LIMITATIONS OF REPORT

As helpful as we hope the report may be, it should be clearly understood that this is not intended as a definitive report on health in the Americas nor on the Pan American Health Organization itself. In order to assure relative simplicity and maximum readability, the subcommittee had asked that the Organization confine its report to but a few specified highlights.

A considerable amount of pertinent material which might have been included has necessarily been omitted.

This is a report, moreover, designed for laymen, rather than for professionals. Interested readers are invited to consult the considerable body of literature which has been developed by PAHO and which describes in greater detail many of the subjects mentioned herein.

Another and very important limiting factor has been one to which reference has been made in virtually all of the publications of this subcommittee to date. Accurate, uniform statistics are unfortunately unavailable for many of the subjects which might otherwise have been included. It is to be hoped that each of the nations will be in a position to strengthen their programs of vital statistics collection so that future years will witness more complete and uniform reporting.

PROCEDURE IN DEVELOPING REPORT

It was recognized early in the subcommittee's study that it would be essential in carrying out our mandate to have a separate presentation of this nature devoted to the health needs of the Americas. This region has been mentioned in many of the earlier reports in this series. (See list, pp. v, vi ff.) But more comprehensive treatment was essential.

Accordingly, a request was conveyed to Dr. Horwitz. He promptly responded and generously made available the full cooperation of his staff. A draft outline was prepared and initial material developed. Over a period of a few months, the outline and material were refined through numerous consultations.

The subcommittee stresses that the final product represents PAHO's kind accommodation to the requests as submitted by the subcommittee.

We gratefully acknowledge the cooperation of Dr. Horwitz and of his staff. Particular thanks is expressed to Dr. Louis J. Verhoestraete, Chief, Health Promotion Branch and Dr. Ruth R. Puffer, Chief, Epidemiology and Statistics Section, who were responsible for coordination of the report with the subcommittee's project director, Mr. Julius N. Cahn. Also special credit is due to Miss Mary H. Burke of the Epidemiology and Statistics Section of PAHO in developing the report.

FUTURE OF HEALTH ACTIVITY

One may ask: "After this report, what? Where do we go from here?"

As to PAHO's future, part IX presents certain observations by the Pan American Health Organization itself. In appraising these observations, each individual reader will naturally bring to bear his or her own particular approach.

Relatively few individuals, however, would disagree with the following judgment, as often stressed by PAHO's leaders (see p. 18, 102): Future improvement in health standards will come as a natural part of the strengthened social and economic development of the Americas.

Such development includes progress in a wide variety of related areas—improved nutrition, education, housing, community services. Health, in effect, is determined by man's total environment. We are, in part, what we are surrounded by. So, too, we are, in part, what we eat, what we know or do not know, what we can earn or not earn.

Thus, reducing disease and disability to minimal levels requires more than the essential skills of the medical arts. It requires the skills of an entire society. This requires a dynamic society, rather than a static society; a diversified economy, rather than one overdependent on a few assets of fluctuating value.

Ill health in a nation does not exist in a vacuum; it is invariably part of a much wider pattern of society. It is rooted in an unfortunate legacy of the past which hinders men and women from the very day of birth onward, through no fault of their own.

It is not hard to find the grim handmaidens of poor health: poor soil, poor water supply, poor social organization, poor transportation, poor communication, poor schools, poor housing, poor employment opportunities.

All this tends to be the lot of the disadvantaged. But it is a lot which can be improved and has been improved and will be improved. And as this occurs, health is improved and energies are strengthened to advance every phase of society.

CONCLUSION

This report is, in conclusion, but a baseline for the future. That future can be as bright as we of the Americas choose to make it.

Fortunately, the people of the Americas have a superb potential. They have many assets—the richness of their cultures, their respect of man's dignity, their pride of nationhood, their tradition of cooperation with OAS, PAHO, and other organizations. The problem now is further to capitalize on these assets.

Medically speaking, moreover, Latin America is not lacking in advantages. It has, unlike some other areas of the world—

(*a*) A solid base of medical resources—many fine medical schools, hospitals, laboratories, physicians, and other specialists;

(*b*) Considerable awareness of medical needs; and

(*c*) A determination to meet those needs.

It is with good reason, therefore, that we may conclude: The peoples of the Americas have come a long way toward better health. They still have a long way to go.

But, no challenge reported within these pages is insuperable. There is much that can be done and will be done. The future is in men's hands. The hope is on men's lips. The key is in men's hearts.

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HEALTH IN THE AMERICAS
AND THE
PAN AMERICAN HEALTH ORGANIZATION

FIGURE 1

THE PAN AMERICAN HEALTH ORGANIZATION
Historical Landmarks

1902 Establishment of the INTERNATIONAL SANITARY BUREAU

The Bureau, created following a resolution of the Second Inter-American Conference, is the oldest international health agency.

1924 Adoption of the PAN AMERICAN SANITARY CODE and change of name to PAN AMERICAN SANITARY BUREAU (PASB)

The Code, a treaty ratified by all 21 American Republics, gave broader health authority to the Bureau.

1946 INTERNATIONAL HEALTH CONFERENCE convened under the auspices of the UNITED NATIONS

This conference produced the Constitution of the World Health Organization (WHO), provided for regional offices and established an Interim Commission to initiate activities prior to the ratification of the Constitution.

1947 Adoption of CONSTITUTION of PAN AMERICAN SANITARY ORGANIZATION (PASO)

The Organization has four organs: 1) the Pan American Sanitary Conference; 2) the Directing Council; 3) the Executive Committee and 4) the Pan American Sanitary Bureau, operating arm of the Organization.

1948 Ratification of CONSTITUTION of the WORLD HEALTH ORGANIZATION

Upon acceptance of the Constitution by 26 Member States of the United Nations the Organization came into existence on April 7, now celebrated annually as World Health Day.

1949 Agreement that PAN AMERICAN SANITARY BUREAU serve also as REGIONAL OFFICE of the WORLD HEALTH ORGANIZATION

1958 Change of name of PAN AMERICAN SANITARY ORGANIZATION to PAN AMERICAN HEALTH ORGANIZATION (PAHO)

Part I

THE PAN AMERICAN HEALTH ORGANIZATION

A. DEVELOPMENT

The Pan American Health Organization has as its basic purpose the promotion and coordination of the efforts of the countries of the Western Hemisphere to combat disease, lengthen life, and promote the physical and mental health of the people. Historical landmarks in the development of the Organization, originally named the International Sanitary Bureau, are listed. As part of its broad mandate on establishment in 1902 the Bureau was to lend its best aid and experience toward the widest possible protection of the public health of each republic in order that disease be eliminated and commerce facilitated. The Pan American Sanitary Code of 1924, a treaty ratified by all of the 21 Republics, gave to the Bureau broader public health authority. At that time its name was changed to the Pan American Sanitary Bureau.

With the adoption of the Constitution of the Pan American Health Organization in 1947 the Bureau became the operating arm of the Organization. The Pan American Sanitary Conference is the supreme governing body determining the general policies of the Organization. The decisions and policies of the Conference are carried out by the Directing Council, comprising representatives of all member states, which meets annually. The Council elects to an Executive Committee seven member governments, whose representatives meet at least every 6 months and deal with matters pertaining to the administration of the Pan American Sanitary Bureau. The functions and duties of the Bureau are determined both by the Pan American Sanitary Code (1924) and by the Constitution of the Organization (1947). Since July 1, 1949, the Bureau has also served as the regional office of the World Health Organization for the Americas. The activities of the Pan American Health Organization and those of the World Health Organization in the region are consolidated in one functional program that is carried out by the Pan American Sanitary Bureau, serving the governments of the Americas.

B. STRUCTURE AND PROGRAM

Headquarters of the Pan American Health Organization is in Washington, D.C., from which the work of its operating arm, the Pan American Sanitary Bureau, is directed. Here the Director and his technical staff do their basic planning and coordination.

Advisory programs to governments are in three broad areas: (1) eradication and control of communicable diseases, (2) strengthening of health services, and (3) education and training. The Organization

also promotes research on important problems. Programs are in operation for the eradication of malaria, smallpox, yaws, and the urban vector of yellow fever, the *Aëdes aegypti* mosquito, and for control of other communicable diseases. In strengthening health services, activities are directed to improvement of basic health organization and services at both national and local levels, in maternal and child health, nutrition, environmental sanitation, statistics and in other specialized fields. Education and training is concerned with the basic professional education of physicians, nurses, and other health workers and is also a part of programs of integrated health services.

The field activities of the Organization are administered from six zone offices which maintain with the health authorities of Member Governments the close relationship and consultation essential for planning and implementation of well-balanced programs to meet the health needs and problems at the national, interzone, and regional levels.

Zones and zone offices are the following:

Zone I at Caracas, Venezuela: Venezuela, Puerto Rico, U.S. Virgin Islands, French Guiana and other departments of France in the Americas, Surinam, Netherlands Antilles, territories of the United Kingdom in the Americas except British Honduras.

Zone II at Mexico, D.F., Mexico: Cuba, Dominican Republic, Haiti, and Mexico.

Zone III at Guatemala City, Guatemala: British Honduras, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

Zone IV at Lima, Peru: Bolivia, Colombia, Ecuador, and Peru.

Zone V at Rio de Janeiro, Brazil: Brazil.

Zone VI at Buenos Aires, Argentina: Argentina, Chile, Paraguay, and Uruguay.

The Washington office is responsible for relations with the United States and Canada. The Mexico-U.S. border field office in El Paso, Tex., has, as its primary function, the coordination of health work along the Mexico-U.S. border.

The Organization has three research and training centers: (1) The Institute of Nutrition of Central America and Panama (INCAP) is located in Guatemala City; its objectives are to study the nutrition problems in the member countries and to work out methods for their solution; (2) the Pan American Foot and Mouth Disease Center; its goal is to aid in the solution of problems regarding this disease which causes serious economic loss in cattle; the center is located in Brazil near Rio de Janeiro; (3) the Pan American Zoonoses Center in Azul, Argentina, was established in 1956 to promote and strengthen activities against the zoonoses in the countries of the Americas.

The location of the zones and their headquarters are shown in the map. The chart shows the type of activities carried on in each country and indicates how widespread is the assistance to governments throughout the region.

FIGURE 2

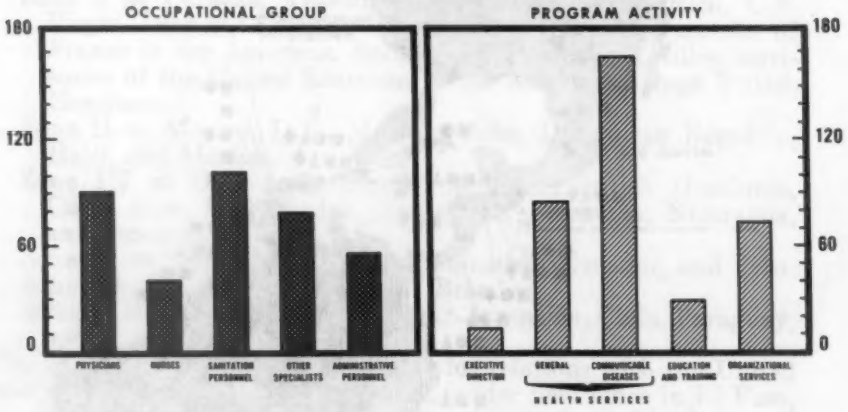
ZONES, ZONE OFFICES AND FIELD ACTIVITIES OF PAN AMERICAN SANITARY BUREAU - 1959

The total positions established for carrying out the work of the Bureau in headquarters in Washington, in the zone and field offices and in the field projects in the countries numbered 688 on October 1, 1959. In addition there were 241 positions at the three centers, the Zoonoses Center, Foot and Mouth Disease Center, and INCAP, making 929 positions. The number employed was 777.

An analysis has been made of the professional positions by program activity and occupational group. The recruitment of international health workers poses problems because of the scarcity of professional personnel in many countries. Of a total of 476 professional positions, 368 or 77 percent were filled.

FIGURE 3

NUMBER OF PROFESSIONAL PERSONNEL EMPLOYED BY PAHO/WHO ON OCTOBER 1, 1959, BY OCCUPATIONAL GROUP AND BY PROGRAM ACTIVITY



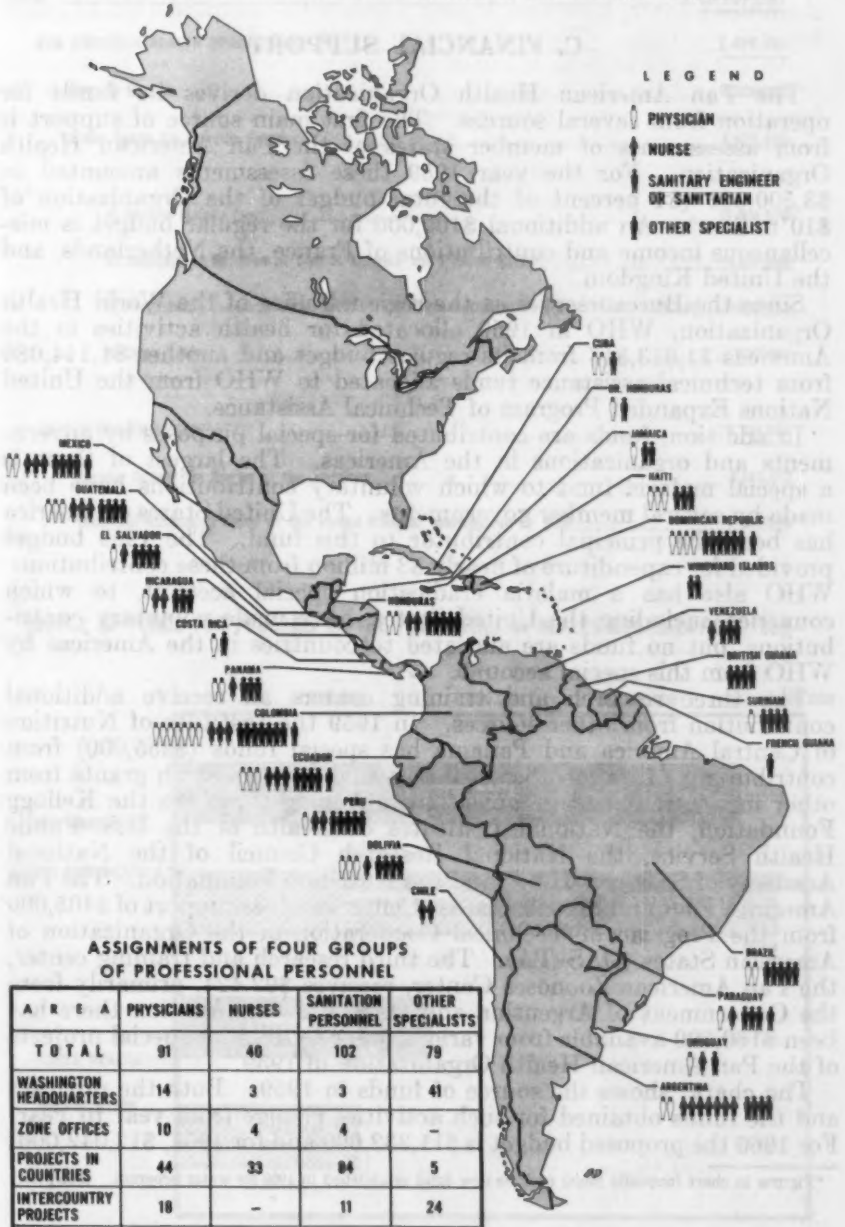
In all programs there were 91 physicians employed, 40 nurses, 102 sanitary engineers and sanitarians, 79 other specialists (veterinarians, statisticians, health educators, translators, etc.), and 56 administrative personnel. Over half of the sanitary engineers and sanitarians were working in programs for malaria eradication.

Thirteen persons, mainly physicians, were responsible for the executive direction of the activities of the Bureau in headquarters and in zone offices. Two hundred and fifty-two or 68 percent were in programs of health services. Almost two-thirds of these (167) were in communicable disease programs, mainly in malaria eradication. Twenty-nine were in education and training and 74 in administrative and organizational services.

On the map on the opposite page are shown the number and type of professional personnel assigned to projects in each country of the region. In addition, information regarding personnel assigned to Washington headquarters, to zone offices, to intercountry projects, and to the three special research and training centers, appears in the accompanying tabulation.

FIGURE 4

INTERNATIONAL PROFESSIONAL PERSONNEL ASSIGNED TO PROJECTS OF THE PAN AMERICAN SANITARY BUREAU IN COUNTRIES OF THE AMERICAS, OCTOBER 1959



ASSIGNMENTS OF FOUR GROUPS OF PROFESSIONAL PERSONNEL

AREA	PHYSICIANS	NURSES	SANITATION PERSONNEL	OTHER SPECIALISTS
TOTAL	91	40	102	79
WASHINGTON HEADQUARTERS	14	3	3	41
ZONE OFFICES	10	4	4	–
PROJECTS IN COUNTRIES	44	33	94	5
INTERCOUNTRY PROJECTS	18	–	11	24
SPECIAL CENTERS	5	–	–	9

C. FINANCIAL SUPPORT

The Pan American Health Organization derives its funds for operation from several sources. The first main source of support is from assessments of member states of the Pan American Health Organization. For the year 1959 these assessments amounted to $3,500,000 (34 percent of the total budget of the Organization of $10 million). An additional $100,000 for the regular budget is miscellaneous income and contributions of France, the Netherlands, and the United Kingdom.

Since the Bureau serves as the regional office of the World Health Organization, WHO in 1959 allocated for health activities in the Americas $1,613,817 from its regular budget and another $1,144,080 from technical assistance funds allocated to WHO from the United Nations Expanded Program of Technical Assistance.

In addition, funds are contributed for special purposes by governments and organizations in the Americas. The largest of these is a special malaria fund to which voluntary contributions have been made by several member governments. The United States of America has been the principal contributor to this fund. The 1959 budget provided for expenditure of nearly $3 million from these contributions. WHO also has a malaria eradication special account, to which countries, including the United States, have made voluntary contributions, but no funds are allocated to countries in the Americas by WHO from this special account.

The three research and training centers all receive additional contribution from other sources. In 1959 the Institute of Nutrition of Central America and Panama has special funds ($355,000) from contributions of its member countries and from research grants from other institutions and organizations. Among these are the Kellogg Foundation, the National Institutes of Health of the U.S. Public Health Service, the National Research Council of the National Academy of Sciences (U.S.), and the Nutrition Foundation. The Pan American Foot and Mouth Disease Center receives support of $405,000 from the Program of Technical Cooperation of the Organization of American States (OAS–TA). The third research and training center, the Pan American Zoonoses Center, receives $92,424, primarily from the Government of Argentina and OAS–TA. In addition there has been $160,000 available from various other sources for special projects of the Pan American Health Organization in 1959.

The chart* shows the source of funds in 1959. Both the program and the funds obtained for such activities change from year to year. For 1960 the proposed budget is $11,332,000 and for 1961, $12,042,000.

*Figures in chart (opposite page) exclude new fund established in 1960 for water program. (See p.52.)

FIGURE 5

BUDGET OF THE PAN AMERICAN HEALTH ORGANIZATION, 1959

TOTAL	$ 10,187,387
PAN AMERICAN HEALTH ORGANIZATION	7,429,490
Regular Budget	3,600,000
Other Funds for Specific Purposes	3,829,490
a) Special Malaria Fund	(2,814,070)
b) Institute of Nutrition of Central America and Panama (INCAP)	(355,000)
c) Program of Technical Cooperation of the Organization of American States (OAS-TA)	(482,554)
d) Other funds	(197,866)
WORLD HEALTH ORGANIZATION	2,757,897
Regular Budget for Region of the Americas	1,613,817
Technical Assistance Funds of the United Nations, administered by WHO	1,144,080

SOURCE OF FUNDS FOR PROGRAM OF THE PAN AMERICAN HEALTH ORGANIZATION, 1959

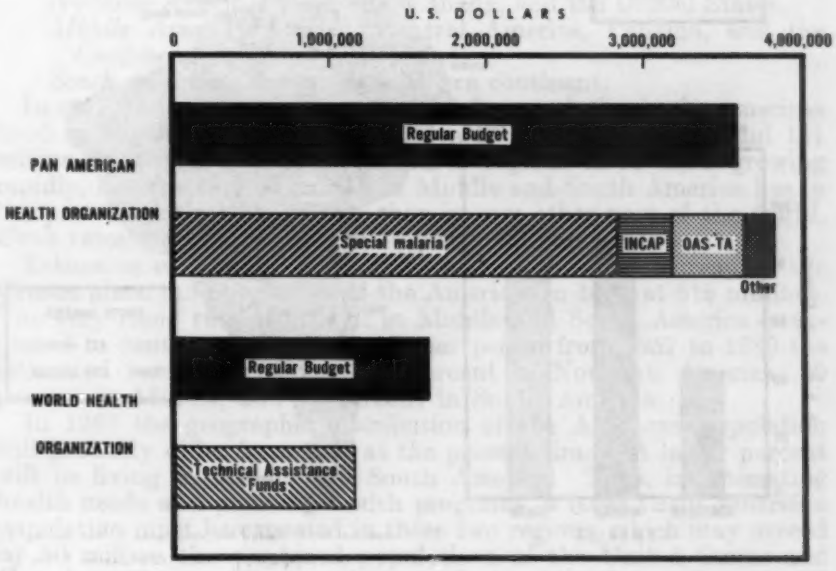
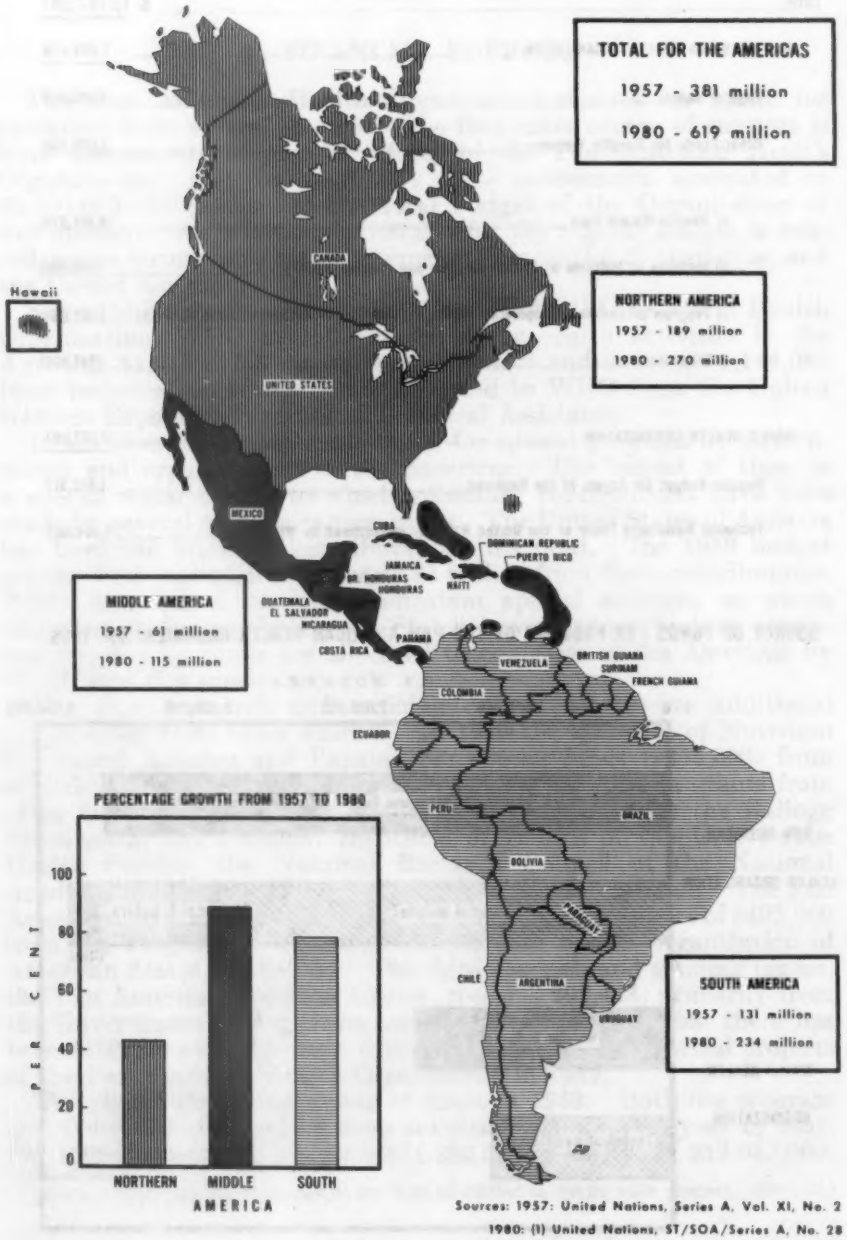


FIGURE 6

ESTIMATED POPULATIONS IN REGIONS OF THE AMERICAS, 1957 AND 1980



Sources: 1957: United Nations, Series A, Vol. XI, No. 2
1980: (1) United Nations, ST/SOA/Series A, No. 28
(2) U. S. Bureau of the Census, Series P-25, No. 187

Part II

THE AMERICAS

A. POPULATION OF THE AMERICAS

The activities of the Pan American Health Organization and of the World Health Organization are extended to the entire Western Hemisphere. Twenty-two countries and 26 other administrative units make up the Americas. In this area in 1957 lived 381 million persons or 13.5 percent of the population of the world. The four principal languages spoken are English, Spanish, French, and Portuguese.

The Americas extend from the North to the South Pole. Part of the population live in temperate climates, but 42 percent live in tropical countries. The United Nations usually divides the area into three regions and this division is the one which will be used in this report. Greenland has been excluded since it belongs to the European region of WHO.

Northern America: Bermuda, Canada, and the United States.

Middle America: Mexico, Central America, Panama, and the Caribbean republics and islands.

South America: The entire southern continent.

In 1957, 189 million persons or half of the population in the Americas lived in Northern America, 61 million in Middle America, and 131 million in South America. All three regions have been growing rapidly, but the rate of growth in Middle and South America has in the past 10 years been greater than in any other part of the world. Birth rates are high, exceeding 40 per 1,000 population.

Estimates of the United Nations and of the U.S. Bureau of the Census place the population of the Americas in 1980 at 619 millions. The very rapid rate of growth in Middle and South America is expected to continue. Over the 23-year period from 1957 to 1980 the estimated increase would be 43 percent in Northern America, 89 percent in Middle, and 77 percent in South America.

In 1980 the geographic distribution of the American population will probably differ from that at the present time. A larger percent will be living in Middle and South America. Thus, in estimating health needs and planning health programs, a large Latin American population must be expected in these two regions, which may exceed by 80 million the combined populations of the United States and Canada. This rapidly growing population already needs and will continue to require expanding resources both of facilities and manpower to provide adequate health services.

B. AGE COMPOSITION

Populations in Middle and South America are relatively young. In 1950 nearly 40 percent of the population was under 15 years of age in both regions. In contrast, in Northern America only 27 percent was in this young age group. People 60 years of age and over made up 12 percent of the total population in Northern America. In Middle and South America, where many do not survive the diseases of infancy and childhood, only 5 and 6 percent, respectively, were 60 years of age and over. The chart on the opposite page shows the similarity of the distribution of populations in Middle and South America and the great difference in these distributions from that in Northern America.

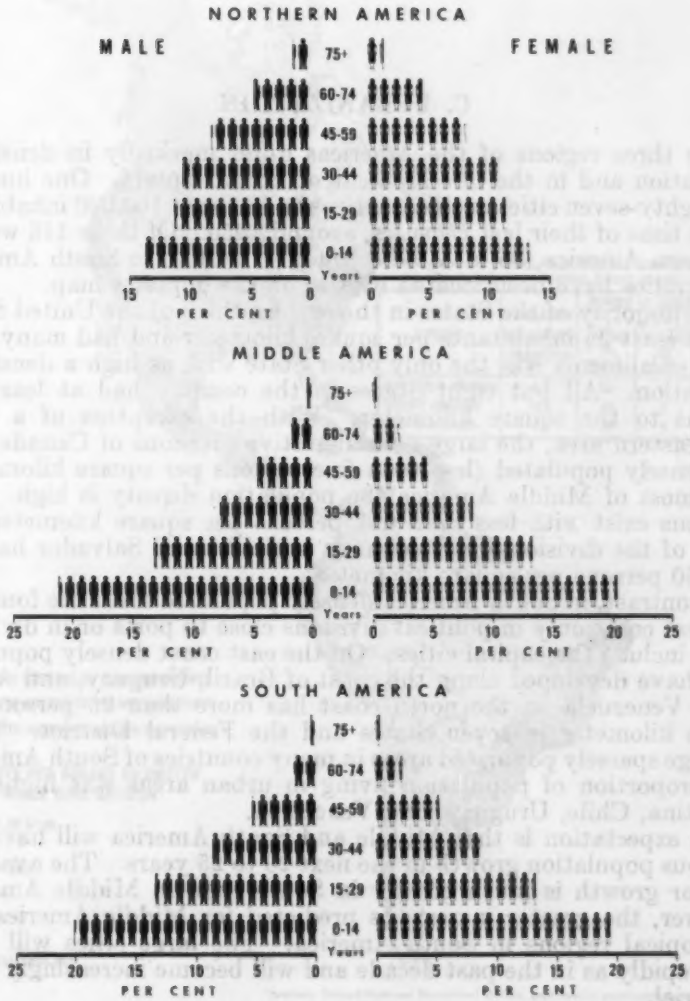
By 1980, the population in the United States in the older age groups (60 years and over) is expected to have increased from the present 18 million to 34 million and will be 14 percent of the total.

In Middle and South America there will also be an increase in the population in the older age group. However, because these populations are now relatively young and in the past have had high death rates in early life, the older age group by 1980 will be only 6 percent of the total population in Middle and 7 percent in South America.

In Northern America there has already been good progress in reducing infant mortality and in bringing the death rates in childhood to a low level. This has been accomplished mainly through control of infectious diseases and through improvement in sanitation, nutrition, and child care. Less progress has been made in controlling diseases and conditions associated with the aging processes in middle and late adult life. Today emphasis is placed on the health programs and the research needed to prevent the chronic diseases in the increasing numbers in the older groups. However, in Middle and South America emphasis on health problems in infancy, childhood, and early adult life must continue. Chronic diseases and geriatrics are not the immediate problems for Latin America although their increasing importance in the future must be considered.

FIGURE 7

PERCENTAGE DISTRIBUTION BY SEX AND AGE OF POPULATION IN THE THREE REGIONS OF THE AMERICAS, 1950



Sources: United Nations, ST/SOA/Series A, Nos. 16 and 21
United Nations, Demographic Yearbooks.

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C. URBANIZATION

The three regions of the Americas differ markedly in density of population and in the development of urban centers. One hundred and eighty-seven cities in the Americas had at least 100,000 inhabitants at the time of their last censuses, around 1950. Of these 116 were in Northern America, 25 in Middle America, and 46 in South America. These cities have been located by size on the opposite map.

The majority of the States in the eastern third of the United States had at least 25 inhabitants per square kilometer and had many large cities. California was the only other State with as high a density of population. All but eight States in the country had at least five persons to the square kilometer. With the exception of a small southeastern area, the large administrative divisions of Canada were not densely populated (less than five persons per square kilometer).

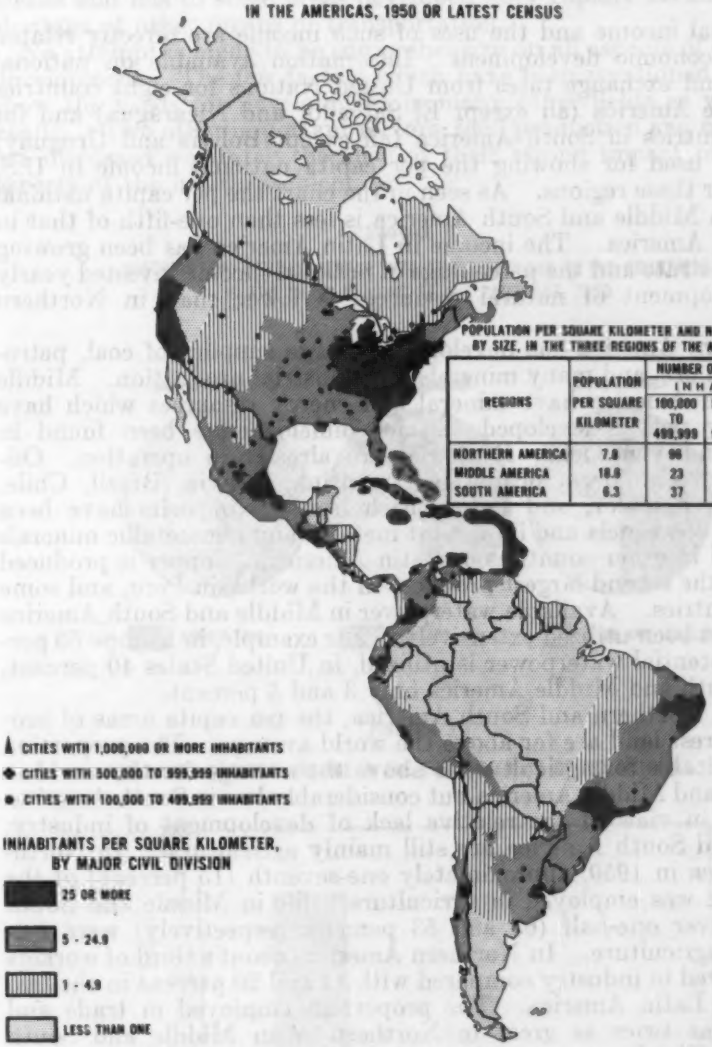
In most of Middle America the population density is high. Few divisions exist with less than five persons per square kilometer and many of the divisions in Guatemala and all in El Salvador have at least 50 persons per square kilometer.

In contrast, in South America densely populated areas are found on the west coast only in political divisions close to ports or in divisions which include the capital cities. On the east coast densely populated areas have developed along the coast of Brazil, Uruguay, and Argentina. Venezuela on the north coast has more than 25 persons per square kilometer in seven States and the Federal District. There are large sparsely populated areas in many countries of South America. The proportion of population living in urban areas was highest in Argentina, Chile, Uruguay, and Venezuela.

The expectation is that Middle and South America will have tremendous population growth in the next 20 to 25 years. The available area for growth is much greater in South than in Middle America. However, the greater increase is predicted for Middle America and the tropical regions in South America. The large cities will grow most rapidly as in the past decade and will become increasingly more industrial.

FIGURE 8

POPULATION DENSITY AND LOCATION OF CITIES OF 100,000 OR MORE INHABITANTS IN THE AMERICAS, 1950 OR LATEST CENSUS


CITIES WITH 1,000,000 OR MORE INHABITANTS
CITIES WITH 500,000 TO 999,999 INHABITANTS
CITIES WITH 100,000 TO 499,999 INHABITANTS
INHABITANTS PER SQUARE KILOMETER, BY MAJOR CIVIL DIVISION
25 OR MORE
5 - 24.9
1 - 4.9
LESS THAN ONE

POPULATION PER SQUARE KILOMETER AND NUMBER OF CITIES BY SIZE, IN THE THREE REGIONS OF THE AMERICAS, 1950

REGIONS	POPULATION PER SQUARE KILOMETER	NUMBER OF CITIES BY SIZE — INHABITANTS		
		100,000 TO 499,999	500,000 TO 999,999	1,000,000 OR MORE
NORTHERN AMERICA	7.9	98	14	6
MIDDLE AMERICA	18.8	23	1	1
SOUTH AMERICA	6.3	37	5	4

Sources: United Nations Statistical Office, and census publications of countries

D. SOME FACTORS IN ECONOMIC DEVELOPMENT

National income and the uses of such income are directly related to socioeconomic development. Information available on national income and exchange rates from United Nations for eight countries in Middle America (all except El Salvador and Nicaragua) and for eight countries in South America (all except Bolivia and Uruguay) has been used for showing the per capita national income in U.S. dollars for these regions. As seen in the chart the per capita national income in Middle and South America is less than one-fifth of that in Northern America. The income in Latin America has been growing at a slower rate and the percentage of national income invested yearly for development of natural resources is lower than in Northern America.

Northern America has developed its large supplies of coal, petroleum, iron ore, and many minerals for industrial production. Middle and South America have mineral and energy resources which have been only partly developed. Major oilfields have been found in Mexico and Venezuela. Refineries are already in operation. Oilfields have also been located in Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, and Peru. Rich iron ore deposits have been located in Venezuela and important metallic and nonmetallic minerals are mined in other countries of Latin America. Copper is produced in Chile, the second largest producer in the world, in Peru, and some other countries. Available waterpower in Middle and South America has not yet been utilized extensively. For example, in Europe 60 percent of potential waterpower is utilized, in United States 40 percent, but in South and Middle America only 3 and 5 percent.

In both Northern and South America, the per capita areas of productive forest land are far above the world average. The proportion of land suitable for agriculture is above the average for the world in Northern and Middle America but considerably less in South America. However, in view of the relative lack of development of industry, Middle and South America are still mainly agricultural. In Northern America in 1950, approximately one-seventh (15 percent) of the labor force was employed in agriculture while in Middle and South America over one-half (63 and 53 percent, respectively) were employed in agriculture. In Northern America, about a third of workers are employed in industry compared with 14 and 20 percent in the two regions of Latin America. The proportion employed in trade and services was twice as great in Northern as in Middle and South America. The large proportions of workers in Middle and South America in agriculture not only are an indication of the underdevelopment of industry and trade but also point to the fact that modern agricultural techniques have not been generally introduced.

Transportation systems both throughout the country and within urban areas are closely related to socioeconomic development. Railways and highways are essential for distribution of food and other supplies, for marketing, for distribution of raw materials and finished products to and from industrial centers as well as to make health and educational facilities available. Highways, secondary roads, and rail-

road lines are limited in Middle and South America. For rapid long-distance travel—air transportation is becoming the most important means and has in some areas developed very rapidly because of the shortage of other means of transportation.

No attempt is made to be comprehensive on all aspects of economic development. The few factors which have been mentioned serve to show the needs for development in many other fields as well as in health. Two other important factors, food production and education, are discussed separately because of their strong impact on specific aspects of the health problem.

FIGURE 9

DISTRIBUTION OF LABOR FORCE INTO THREE SECTORS IN THE COUNTRIES IN THE THREE REGIONS OF THE AMERICAS, 1950

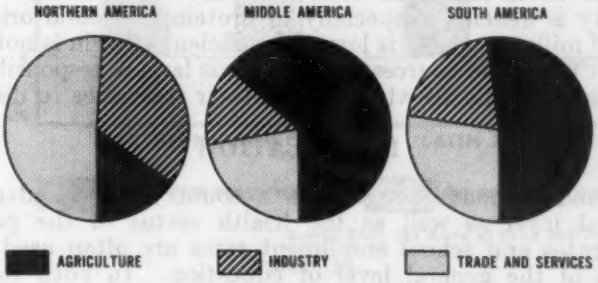
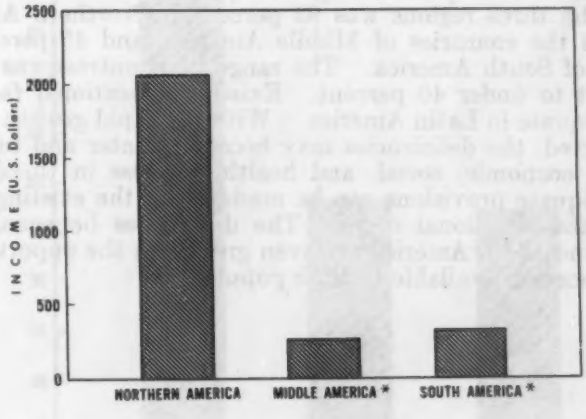


FIGURE 10

PER CAPITA NATIONAL INCOME IN THE THREE REGIONS OF THE AMERICAS, 1957



* Only 8 countries included in each region.

Sources: United Nations, Statistical Yearbook, 1958
United Nations, Economic Bulletin for Latin America, Vol. II, No. 1

E. FOOD PRODUCTION

The level of food production and consumption both in quantity and quality is closely related to health conditions. In recent years food production has increased in all three regions of the Americas. In Middle and South America the sizable increase has barely kept pace with the rapid increase in the population. As a result per capita food production was slightly less in 1956–58 than in 1934–38.

The average quantity of food consumed per capita is deficient in only a few Latin American countries. However, in most countries the quality is deficient, especially in protein of animal origin. The amount of milk consumed is low and sufficient protein is not obtained from meat and other sources. This lack is largely responsible for the malnutrition in children which lowers their resistance to disease.

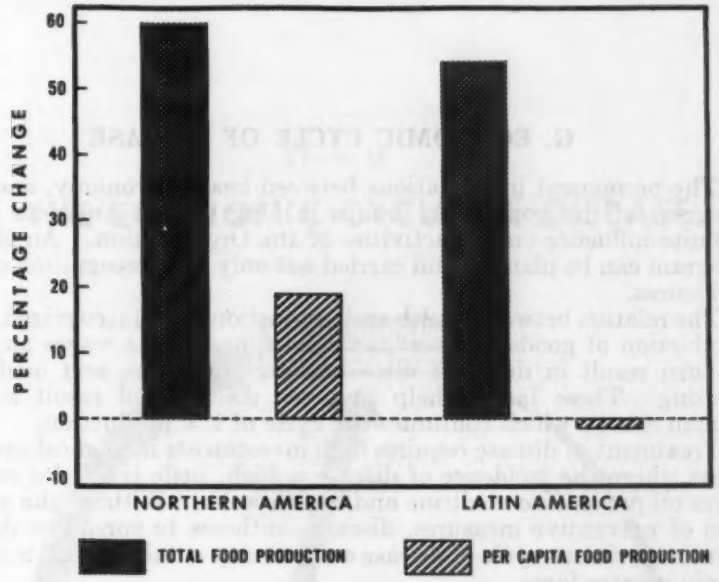
F. EDUCATION

Social and economic progress in a country is dependent on the educational level as well as the health status of the population. Literacy rates and school enrollment rates are often used as rough indicators of the general level of education. In both the United States and Canada over 97 percent of the population 15 years of age and over are literate. In Latin American countries the corresponding percentages range from 10.5 to 86.4 percent. In nine countries less than half the population was literate at the time of their last censuses around 1950.

Of children 5–14 years of age the percent enrolled in school in 1955 in the three regions was 92 percent in Northern America, 47 percent in the countries of Middle America, and 45 percent in the countries of South America. The range by countries was from over 90 percent to under 40 percent. Existing educational facilities are now inadequate in Latin America. With the rapid growth of population expected, the deficiencies may become greater and further slow down the economic, social, and health progress in these countries unless adequate provisions can be made to fill the existing gaps and plan for the additional needs. The differences between Northern America and Latin America are even greater in the opportunities for higher education available to their populations.

FIGURE 11

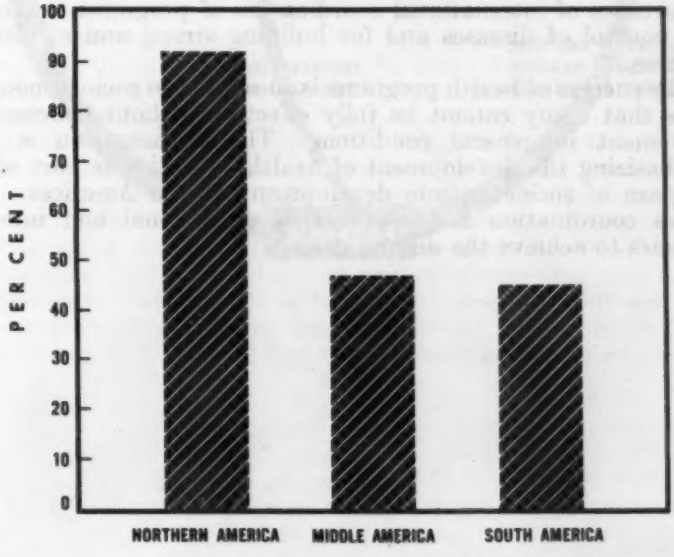
PERCENTAGE CHANGE IN TOTAL AND PER CAPITA FOOD PRODUCTION BETWEEN 1934-1938 AND 1956-1958, IN NORTHERN AND LATIN AMERICAN COUNTRIES



Source: FAO, The State of Food and Agriculture, 1958

FIGURE 12

PER CENT OF CHILDREN 5-14 YEARS OF AGE ENROLLED IN SCHOOLS IN COUNTRIES OF THE AMERICAS IN 1955



Source: United Nations, Report on World Social Situation, 1957

G. ECONOMIC CYCLE OF DISEASE

The permanent interrelations between health, economy, and social progress of the population groups making up the Americas have a definite influence on the activities of the Organization. An effective program can be planned and carried out only with recognition of these influences.

The relation between health and production is well recognized. Low production of goods and services means inadequate wages and these in turn result in deficient diets, meager education, and inadequate housing. These factors help to breed disease and result in lower human energy which continues the cycle of low production.

Treatment of disease requires high investments in medical care. In areas where the incidence of disease is high, little is left for expenditures on preventive medicine and health work. Without the application of preventive measures, disease continues to spread or develop. Thus, the vicious cycle of disease and poverty continues and may even attain greater force.

No country, no matter how good its health and economic conditions, can by itself completely prevent the spread of disease, for no disease is restricted by national boundaries. Thus each country feels the effect of its neighbors' diseases and the economic cycles which influence them. It is recognition of these facts that increases each day the importance of international coordination of programs for eradication and control of diseases and for building strong and efficient health services.

The success of health programs is so related to socioeconomic conditions that many cannot be fully effective without concomitant improvement in general conditions. The Organization is therefore emphasizing the development of health activities as part of a broad program of socioeconomic development of the Americas. This requires coordination and cooperation of national and international agencies to achieve the desired goals.

FIGURE 13

THE ECONOMIC CYCLE OF DISEASE

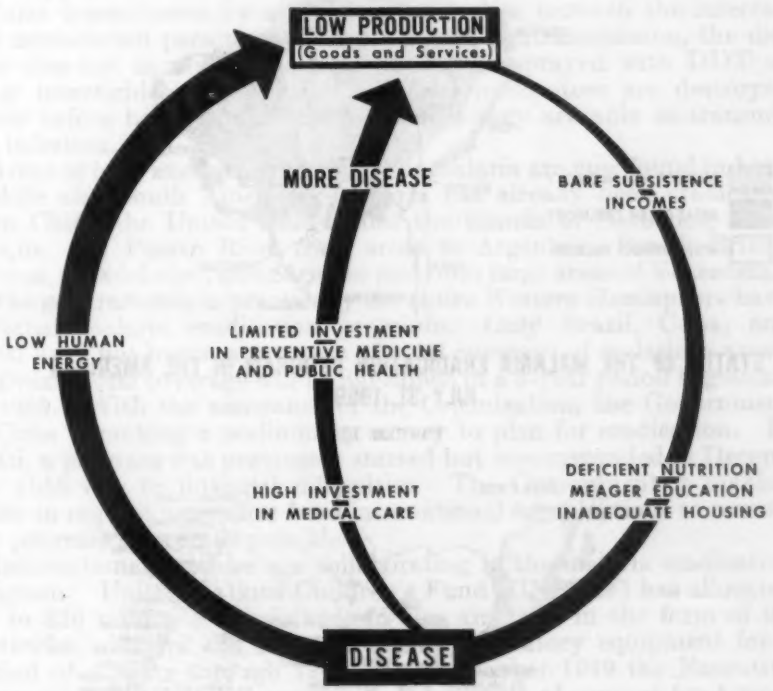
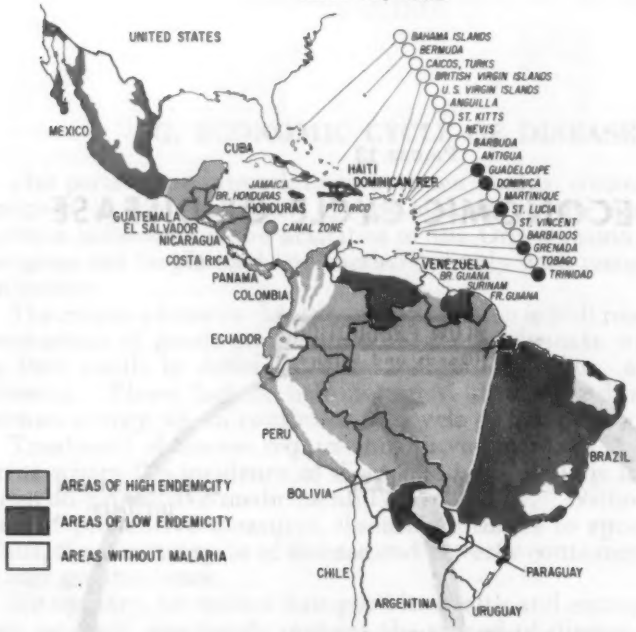


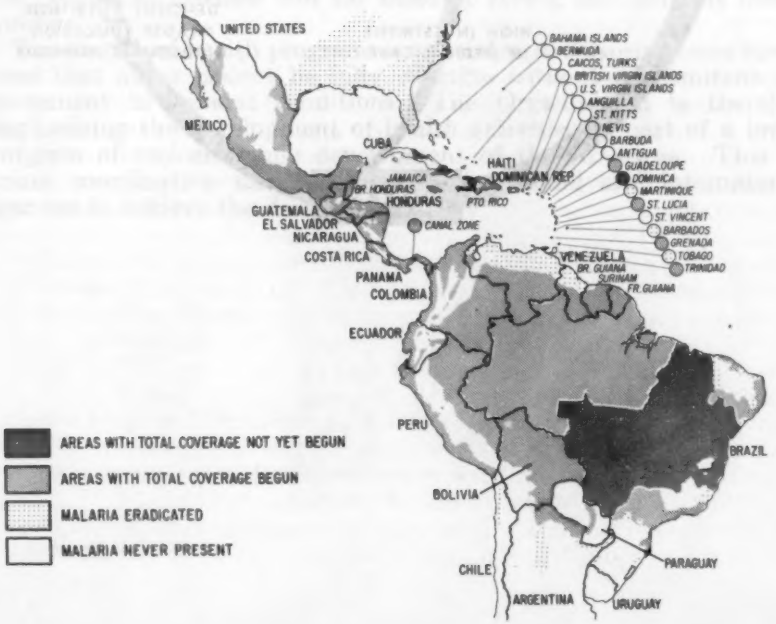
FIGURE 14

DISTRIBUTION OF MALARIA IN THE AMERICAS
JULY 31, 1959



STATUS OF THE MALARIA ERADICATION PROGRAM IN THE AMERICAS
JULY 31, 1959

FIGURE 15



Part III

COMMUNICABLE DISEASES

A. MALARIA

A major program of the Organization is the eradication of malaria from the hemisphere—first proposed in 1950. The Pan American Sanitary Conference of 1954 recommended intensification and coordination to achieve eradication of malaria in the Western Hemisphere. The World Health Assembly in 1955 recommended the worldwide eradication of the disease. An eradication program is a concentrated, coordinated, all-out attack to end the problem permanently. This implies the complete elimination of all sources of infection so that even in the absence of specific preventive measures the disease does not reappear. Malaria eradication depends on breaking the chain of malaria transmission by establishing a barrier between the infected and noninfected persons. After 3 years of nontransmission, the disease dies out in man. Walls of homes are sprayed with DDT or other insecticides so that the *Anopheles* mosquitoes are destroyed either before becoming infected or before they are able to transmit the infection.

Areas of high and low endemicity for malaria are now found in both Middle and South America. Malaria has already been eradicated from Chile, the United States, and the islands of Barbados, Martinique, and Puerto Rico, from areas in Argentina, Brazil, British Guiana, Guadeloupe, and Surinam and from large areas of Venezuela.

The governments in practically the entire Western Hemisphere have initiated malaria eradication programs. Only Brazil, Cuba, and Haiti have not begun a program of total coverage of malarious areas. In Brazil, total coverage will be developed in a 3-year period beginning in 1959. With the assistance of the Organization, the Government of Cuba is making a preliminary survey to plan for eradication. In Haiti, a program was previously started but was suspended in December 1958 due to financial difficulties. The Government is making plans to request assistance from international organizations to resume the program as soon as possible.

International agencies are collaborating in the malaria eradication program. United Nations Children's Fund (UNICEF) has allocated up to $20 million for assistance in the Americas in the form of insecticides, vehicles and accessories, and laboratory equipment for a period of 4 years through 1960. In September 1959 the Executive Committee of UNICEF approved an extension of support for 4 more years up to the sum of $10 million annually to assist programs in both the Americas and other regions. The U.S. International Cooperation Administration (ICA) has also given generous support to the development of the malaria eradication program. The substantial contributions of the United States and other nations to the PAHO Special Malaria Fund has made possible the significant expansion of the Organization's activities in the fields of training, technical advice, coordination, and financial assistance. The governments of the countries undertaking eradication campaigns provided approximately $28 million to their own eradication programs in 1959.

Eradication of malaria will be a major contribution to the improvement of the economic, social, and health conditions of the Americas.

The outcome of a successful malaria campaign should repay within a few years its cost to the governments and should set off a chain reaction for investment of funds in new health programs.

At present malaria is a definite threat to economic development. For example, for increasing food production, as is necessary for the rapidly growing population, practically all new areas available for agriculture are in tropical regions where malaria is a hazard. Likewise, developments of waterpower and industry will be practical in many areas when malaria is eradicated. Because of the urgency of completion of eradication before further development of anopheline resistance to insecticides, and to preserve the gains already made, adequate financial resources must be obtained.

In addition to its importance for the improvement of socioeconomic as well as health conditions, the worldwide demonstration of the eradication of malaria will establish the principle that eradication of certain diseases can be accomplished. As a result, methods will be developed for eradication of other diseases. For all these reasons, top priority is given to the rapid completion of malaria eradication.

B. *AËDES AEGYPTI,* VECTOR OF URBAN YELLOW FEVER

The pattern for the solution of a communicable disease problem by simultaneous eradication programs in all areas, to be coordinated by the Organization, was set in 1947 by a resolution of the Directing Council. This resolution was directed to the eradication from the region of the *Aëdes aegypti* mosquito, the vector of urban yellow fever. This action was suggested by Brazil, where the final stage of the national campaign for the eradication of the *Aëdes aegypti* mosquito was being hampered by its reintroduction from neighboring countries. The approval of the proposal was an important landmark in international health. It marked the introduction into international health of the concept that eradication is a common responsibility of the nations of a region. This was the first official recognition of the obligation of infested territories to free themselves, not only to benefit their own people, but also to protect the peoples of other countries.

Earlier, the Rockefeller Foundation had collaborated with national health authorities with the goal of eradicating yellow fever. When victory appeared imminent over the human *aegypti*-transmitted disease, yellow fever was discovered in the jungles as a disease of monkeys and other vertebrates. The jungle was inaccessible to the application of measures directed to eradication of the disease. Therefore the present objective of the Organization is to keep the areas outside of the jungle free of *Aëdes aegypti*, the urban vector.

The chart shows the status of the eradication campaign on December 31, 1958. *Aëdes aegypti* had been eradicated from Bolivia, Brazil, British Honduras, the Canal Zone, Ecuador, French Guiana, Nicaragua, Panama, Paraguay, Peru, and Uruguay. In 1959, Guatemala and Honduras were declared free. Efforts must be intensified to complete the eradication of *Aëdes aegypti* from the Americas so that the danger of urban yellow fever will be permanently eliminated.

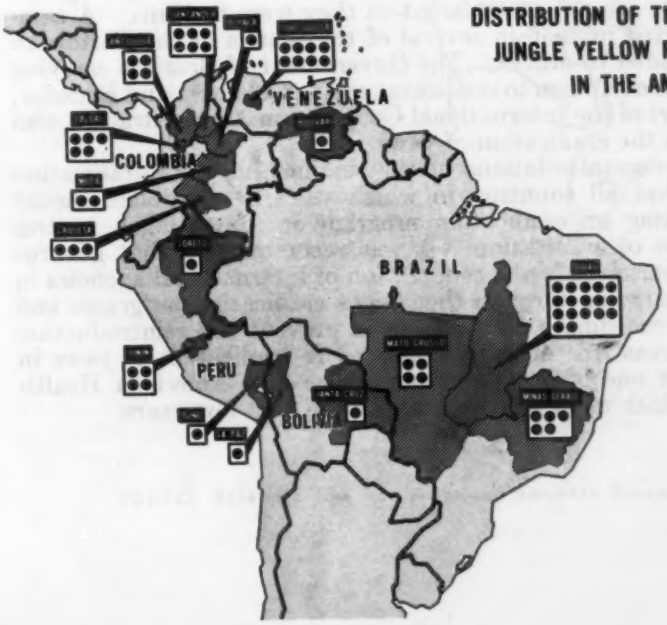
Jungle yellow fever is found in limited tropical areas. In 1958 cases of jungle yellow fever were reported in Bolivia, Brazil, Colombia, Peru, and Venezuela. Yellow fever vaccine must be given to populations living in or near the jungle areas.

FIGURE 16

STATUS OF THE AËDES AEGYPTI ERADICATION CAMPAIGN, DECEMBER 31, 1958

FIGURE 17

DISTRIBUTION OF THE 64 CASES OF JUNGLE YELLOW FEVER REPORTED IN THE AMERICAS IN 1958



C. YAWS

The concept and techniques of disease eradication as applied to yaws were first developed and launched in Haiti in 1950. Yaws eradication campaigns are based on a direct attack on the causative spirochaetal organism by mass antibiotic therapy of all apparently infected persons and all contacts living in the immediate population group. A single injection of penicillin is sufficient to interrupt the chain of transmission and to prevent the disease from spreading to healthy persons. Since penicillin is cheap and easily administered, it is well suited for use in mass treatment programs.

Yaws is a disfiguring and disabling disease still found in parts of the Western Hemisphere and formerly was most serious in Haiti where a large proportion of the rural population had the disease. Yaws is present in varying degree in rural areas in Bolivia, Brazil, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, Guatemala, Haiti, Panama, Peru, Venezuela, the Guianas, and a number of Caribbean territories. The distribution of the disease as of December 31, 1956, is shown in the accompanying chart.

An eradication campaign, begun in 1950 and now in its final stages, is believed to be effectively eradicating yaws from Haiti. Treatment teams have made house-to-house visits in all parts of the Republic treating all obvious or suspected cases and, with a lower dosage, all contacts who may be incubating the infection. Practically everyone living in a rural area of Haiti has been treated. Now that the campaign in Haiti is coming to a close, increasing attention is being given to the eradication of yaws in other countries where disfiguring and crippling effects are not as apparent as they were in Haiti. A campaign was started in 1956 in several of the islands in the Caribbean and later extended to others. The Government of Brazil is carrying out an intensive campaign to eradicate yaws. Colombia and Ecuador, with the support of the International Cooperation Administration, also are working on the eradication of yaws.

One of the recommendations of the seminar on yaws eradication in 1956 was that all countries in which yaws is a problem should consider initiating an eradication program or converting a control program to one of eradication. It was recommended that governments avail themselves of the cooperation of international agencies in planning and carrying through their yaws eradication programs and that they also coordinate their efforts to prevent the reintroduction of yaws into areas free of the disease. The eradication of yaws in the Americas is one of the programs of the Pan American Health Organization which must be completed in the next few years.

FIGURE 18

DISTRIBUTION OF YAWS IN THE AMERICAS - DECEMBER 31, 1956

SOURCE: Boletin of the Pan American Sanitary Bureau, May, 1957

D. SMALLPOX

Smallpox is still an important health problem in the Americas as in the rest of the world although adequate preventive measures have been known for over 160 years. In many countries the disease has been eradicated; in others it continues to be a subject of serious concern. The data on the accompanying map show that 4,311 cases of smallpox were reported in 1958 from 7 countries of Middle and South America. The major political divisions with 50 or more reported cases shown in black are located in Bolivia, Ecuador, and Colombia. For Brazil data are available only from State capitals, and as judged from their reports smallpox continues to be a major health problem.

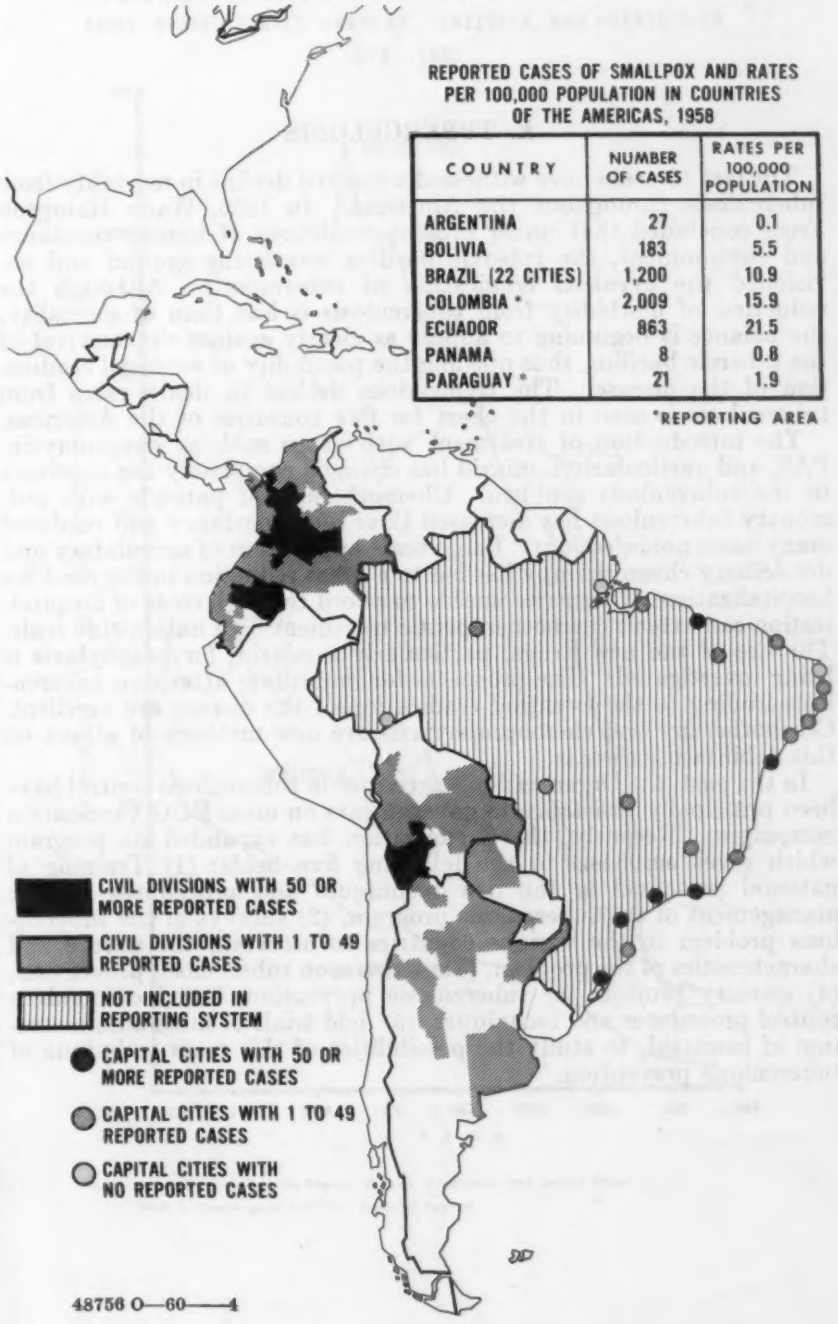
The governing bodies of the Pan American Health Organization in 1950 recommended that the member governments undertake systematic programs of smallpox vaccination to eradicate the disease from the hemisphere. Later they established a special fund to launch the continentwide eradication campaign. The Organization promoted the production in the various countries of high-quality vaccine capable of withstanding the effects of climate and of difficult transportation conditions. In 1958 the Eleventh World Health Assembly recommended investigation of means of ensuring worldwide eradication of smallpox and the XV Pan American Sanitary Conference urged the completion of eradication of this disease in the Americas.

The achievement of eradication throughout the hemisphere requires the concentrated efforts of the countries where the disease is still found, both for the protection of their own population and for the safety of other countries where the disease has been eradicated. The financial expenditure necessary for completion of the campaign is relatively small when compared with the enormous costs of eradicating other diseases. In view of the high priority assigned to this program, firm support, both financially and technically, is being given by the Organization to the country projects. Properly organized and systematic campaigns to administer smallpox vaccine to the populations are measures sufficient to ensure complete protection against the disease. Through these measures, eradication of smallpox can be achieved in the Americas.

Good examples of the success of smallpox eradication are evident in Mexico, Peru, and Venezuela. In Mexico, as the result of a campaign that covered the entire country, no cases of smallpox have occurred since 1951. In Peru, smallpox eradication was launched in 1950 with the cooperation of the Organization, and no cases have occurred since December 1954. In Venezuela the campaign was successfully completed and no cases have occurred since 1956. A nationwide program was undertaken in Bolivia in 1958 with the aim of covering 80 percent of the population. During that year, 2,400,000 vaccinations were completed. The International Cooperation Administration of the United States is actively collaborating in this program, and the Organization assisted by providing equipment for the laboratory for production of dried vaccine. Other countries are carrying on similar campaigns in which the Organization has also been participating. It is prepared to continue serving the member governments, with every means at its command, in order that this ultimate goal may be attained within the shortest time possible.

FIGURE 19

DISTRIBUTION OF SMALLPOX CASES REPORTED IN THE AMERICAS, 1958


CIVIL DIVISIONS WITH 50 OR MORE REPORTED CASES
CIVIL DIVISIONS WITH 1 TO 49 REPORTED CASES
NOT INCLUDED IN REPORTING SYSTEM
CAPITAL CITIES WITH 50 OR MORE REPORTED CASES
CAPITAL CITIES WITH 1 TO 49 REPORTED CASES
CAPITAL CITIES WITH NO REPORTED CASES

REPORTED CASES OF SMALLPOX AND RATES PER 100,000 POPULATION IN COUNTRIES OF THE AMERICAS, 1958

COUNTRY	NUMBER OF CASES	RATES PER 100,000 POPULATION
ARGENTINA	27	0.1
BOLIVIA	183	5.5
BRAZIL (22 CITIES)	1,200	10.9
COLOMBIA *	2,009	15.9
ECUADOR	863	21.5
PANAMA	8	0.8
PARAGUAY *	21	1.9

*REPORTING AREA

48756 O—60——4

E. TUBERCULOSIS

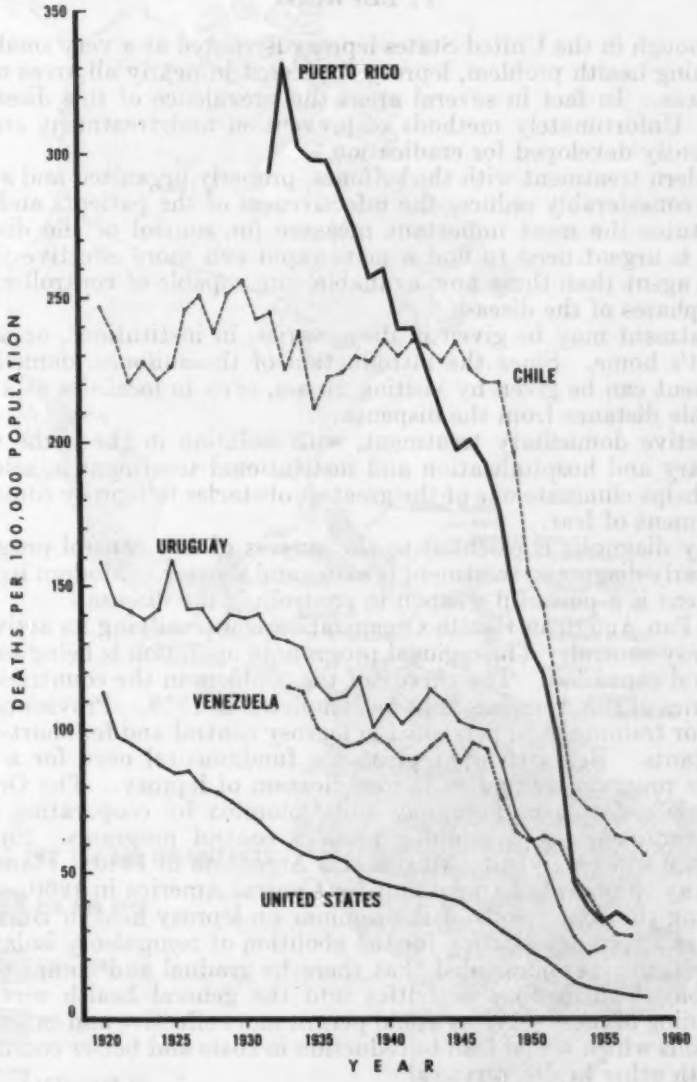
The last 10 years have witnessed a marked decline in mortality from tuberculosis throughout the Americas. In 1936, Wade Hampton Frost concluded that under present conditions of human resistance and environment, the tubercle bacillus was losing ground and envisioned the eventual eradication of tuberculosis. Although the reduction of morbidity from tuberculosis is less than of mortality, the balance is beginning to appear as clearly against the survival of the tubercle bacillus, thus opening the possibility of eventual eradication of the disease. The tremendous decline in death rates from tuberculosis is seen in the chart for five countries of the Americas.

The introduction of treatment with drugs such as streptomycin, PAS, and particularly isoniazid has changed completely the approach to the tuberculosis problem. Chemotherapy of patients with pulmonary tuberculosis has increased their life expectancy and rendered many cases noninfectious. Large-scale application of ambulatory and domiciliary chemotherapy has led to a great reduction in the need for hospitalization. Countries unable to afford the high costs of hospitalization can extend chemotherapeutic treatment on a nationwide scale. The use of the new drugs, particularly isoniazid, for prophylaxis is being investigated. The prospects for immediate attack on tuberculosis leading to the eventual eradication of the disease are excellent. Chemotherapy and chemoprophylaxis are new methods of attack on this debilitating disease.

In the past, the Organization's activities in tuberculosis control have been principally assistance to governments on mass BCG vaccination campaigns. Recently, the Organization has expanded its program which gives emphasis to the following five fields: (1) Training of national personnel in the new techniques and procedures for the management of the tuberculosis program, (2) surveys of the tuberculosis problem in the various countries to ascertain the nature and characteristics of the problem, (3) seminars on tuberculosis prevention, (4) country projects for tuberculosis prevention, based on modern control procedures and techniques, (5) field trials of mass administration of isoniazid, to study the possibilities of this mass technique of tuberculosis prevention.

FIGURE 20

DEATHS FROM TUBERCULOSIS PER 100,000 POPULATION IN CHILE, UNITED STATES, URUGUAY, VENEZUELA, AND PUERTO RICO 1920 - 1958



Source: National Vital Statistics Reports of Chile, Venezuela, and United States
WHO Epidemiological and Vital Statistics Reports

F. LEPROSY

Although in the United States leprosy is viewed as a very small and vanishing health problem, leprosy is present in nearly all areas of the Americas. In fact in several areas the prevalence of this disease is high. Unfortunately methods of prevention and treatment are not sufficiently developed for eradication.

Modern treatment with the sulfones, properly organized and supervised, considerably reduces the infectiveness of the patients and now constitutes the most important measure for control of the disease. There is urgent need to find a more rapid and more effective therapeutic agent than those now available, one capable of controlling the acute phases of the disease.

Treatment may be given in dispensaries, in institutions, or in the patient's home. Since the introduction of the sulfones, domiciliary treatment can be given by visiting nurses, even in localities at a considerable distance from the dispensary.

Effective domiciliary treatment, with isolation in the home when necessary and hospitalization and institutional treatment in selected cases, helps eliminate one of the greatest obstacles to leprosy control—the element of fear.

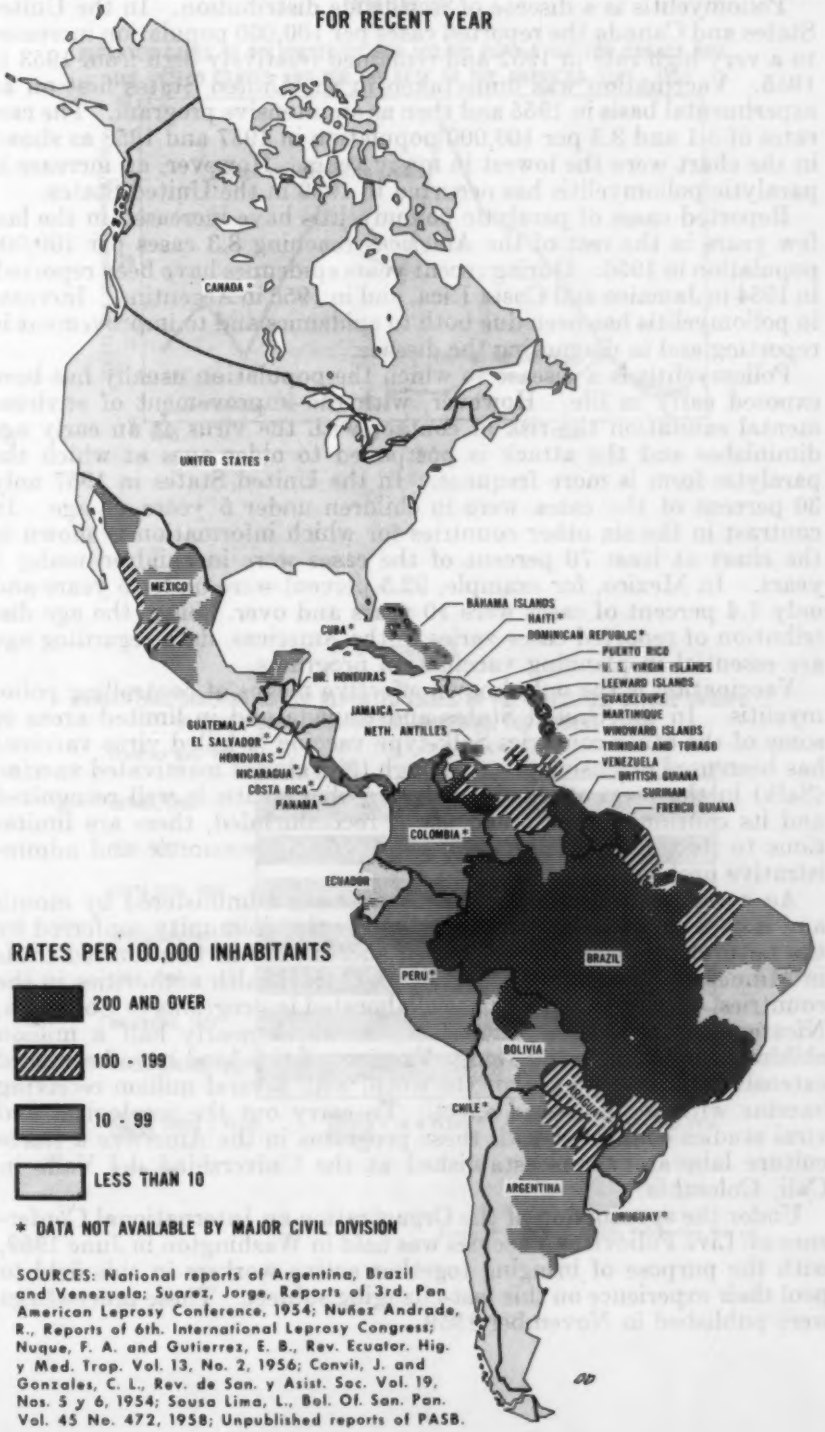
Early diagnosis is essential to the success of any control program. With early diagnosis, treatment is easier and shorter. Modern leprosy treatment is a powerful weapon in controlling the disease.

The Pan American Health Organization is intensifying its activities in leprosy control. The regional program in operation is being broadened and expanded. The survey of the problem in the countries and territories of the Americas is to be completed in 1959. Provisions are made for training local personnel in leprosy control and for short-term consultants. Research is at present a fundamental need for a progressive program leading to the eradication of leprosy. The Organization is assisting in Paraguay and Colombia by cooperating with the governments in developing modern control programs. Similar assistance will be given to Mexico and Argentina in 1960. Plans are underway to provide a consultant for Central America in 1960.

Among the conclusions of the seminar on leprosy held in Brazil in 1958 was a recommendation for the abolition of compulsory isolation. It was further recommended that there be gradual and complete integration of antileprosy activities into the general health services. Broadening of these services would permit more effective and extensive operations which would lead to reduction in costs and better coordination with other health services.

FIGURE 21

PREVALENCE OF LEPROSY BY MAJOR CIVIL DIVISION IN COUNTRIES OF THE AMERICAS FOR RECENT YEAR



SOURCES: National reports of Argentina, Brazil and Venezuela; Suarez, Jorge, Reports of 3rd. Pan American Leprosy Conference, 1954; Nuñez Andrade, R., Reports of 6th. International Leprosy Congress; Nuque, F. A. and Gutierrez, E. B., Rev. Ecuator. Hig. y Med. Trop. Vol. 13, No. 2, 1956; Convit, J. and Gonzales, C. L., Rev. de San. y Asist. Soc. Vol. 19, Nos. 5 y 6, 1954; Sousa Lima, L., Bol. Of. San. Pan. Vol. 45 No. 472, 1958; Unpublished reports of PASB.

G. POLIOMYELITIS

Poliomyelitis is a disease of worldwide distribution. In the United States and Canada the reported cases per 100,000 population increased to a very high rate in 1952 and remained relatively high from 1953 to 1955. Vaccination was undertaken in the United States first on an experimental basis in 1955 and then as an intensive program. The case rates of 3.1 and 3.3 per 100,000 population in 1957 and 1958 as shown in the chart were the lowest in many years. However, an increase in paralytic poliomyelitis has occurred in 1959 in the United States.

Reported cases of paralytic poliomyelitis have increased in the last few years in the rest of the Americas reaching 8.3 cases per 100,000 population in 1956. During recent years epidemics have been reported, in 1954 in Jamaica and Costa Rica, and in 1956 in Argentina. Increase in poliomyelitis has been due both to epidemics and to improvement in reporting and in diagnosing the disease.

Poliomyelitis is a disease to which the population usually has been exposed early in life. However, with the improvement of environmental sanitation the risk of contact with the virus at an early age diminishes and the attack is postponed to older ages at which the paralytic form is more frequent. In the United States in 1957 only 30 percent of the cases were in children under 5 years of age. In contrast in the six other countries for which information is shown in the chart at least 70 percent of the cases were in children under 5 years. In Mexico, for example, 92.5 percent were under 5 years and only 1.4 percent of cases were 10 years and over. Since the age distribution of reported cases varies in the Americas, data regarding age are essential in planning vaccination programs.

Vaccination is the only known effective means of controlling poliomyelitis. In the United States and Canada and in limited areas of some of the other countries Salk-type vaccine (a killed virus vaccine) has been used extensively. Although the value of inactivated vaccine (Salk) in the prevention of paralytic poliomyelitis is well recognized and its continued widespread use is recommended, there are limitations to its use especially with respect to the economic and administrative problems.

An attenuated live virus vaccine which is administered by mouth and is capable of reproducing the long-lasting immunity conferred by the natural infection has been used successfully in two limited trials in Minnesota, U.S.A. At the request of the health authorities in the countries, the Organization has collaborated in programs in Colombia, Nicaragua, Costa Rica, and Haiti, in which nearly half a million children have been vaccinated. Vaccines of this kind have been used extensively in other parts of the world with several million receiving vaccine without untoward effect. To carry out the serological and viral studies connected with these programs in the Americas a tissue culture laboratory was established at the Universidad del Valle in Cali, Colombia.

Under the sponsorship of the Organization an International Conference on Live Poliovirus Vaccines was held in Washington in June 1959, with the purpose of bringing together active workers in this field to pool their experience on this fast-changing subject. These proceedings were published in November 1959.

FIGURE 22

REPORTED CASES OF POLIOMYELITIS PER 100,000 POPULATION FOR CANADA AND THE UNITED STATES AND FOR THE REST OF THE AMERICAS, 1945 - 1958

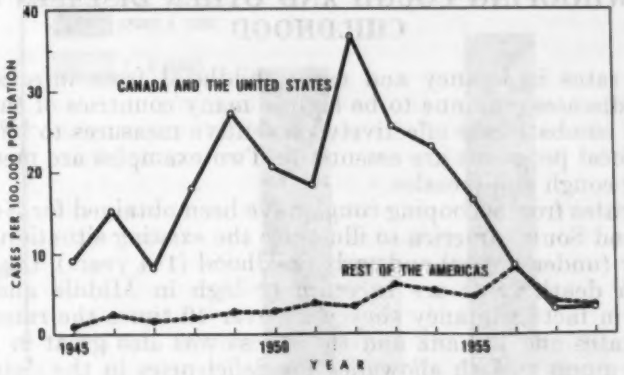
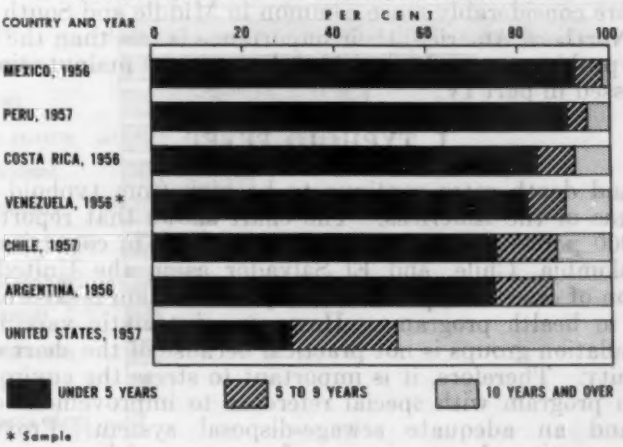


FIGURE 23

PERCENTAGE DISTRIBUTION OF REPORTED CASES OF POLIOMYELITIS, BY AGE GROUPS, IN SEVEN COUNTRIES OF THE AMERICAS, FOR RECENT YEAR



Source: P A H O, Scientific Publication No. 40

H. WHOOPING COUGH AND OTHER DISEASES OF CHILDHOOD

Death rates in infancy and early childhood from infectious and parasitic diseases continue to be high in many countries of the Americas. To combat these effectively preventive measures to be applied through local programs are essential. Two examples are mentioned, whooping cough and measles.

Death rates from whooping cough have been obtained for Northern, Middle, and South America to illustrate the existing situation. Both in infancy (under 1 year) and early childhood (1–4 years), the whooping cough death rates are exceedingly high in Middle and South America; in fact in infancy they were over 40 times the rates in the United States and Canada and the excess was also great in the 1–4 years age group. With allowance for deficiencies in the data, there is evidence that the whooping cough problem is great. Since vaccination against whooping cough is effective, its application should reduce the problem. However, to carry out such a program local health services must be extended considerably throughout the Americas.

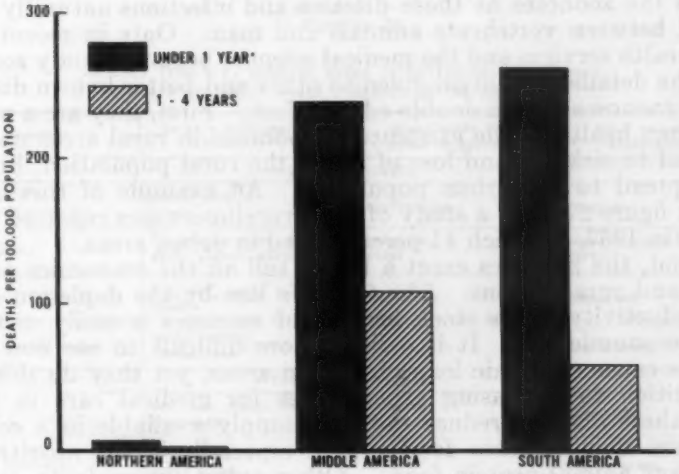
Death rates are also high for measles. In five of the countries providing data, measles was one of the first five principal causes of death of children 1–4 years of age. At present there is no effective method of prevention but a live attenuated vaccine has been prepared. It is under laboratory and clinical trial on a limited basis and is showing promising results. Although deaths from whooping cough and measles are considerably more common in Middle and South America than in Northern America, their importance is less than the two outstanding problems, namely diarrheal diseases and malnutrition, which are discussed in part IV.

I. TYPHOID FEVER

Case and death rates continue to be high from typhoid fever in many areas of the Americas. The chart shows that reported cases per 100,000 population are many times as high in countries such as Peru, Colombia, Chile, and El Salvador as in the United States. Prevention of cases of typhoid fever by vaccination is possible and is included in health programs. However, systematic vaccination of large population groups is not practical because of the short duration of immunity. Therefore, it is important to stress the environmental sanitation program with special reference to improvement of water supply and an adequate sewage-disposal system. Provision of sufficient quantity of water is part of a water supply program which the Organization is promoting.

FIGURE 24

DEATHS FROM WHOOPING COUGH PER 100,000 POPULATION OF CHILDREN UNDER 1 YEAR AND 1 - 4 YEARS OF AGE IN THE AMERICAS, 1956

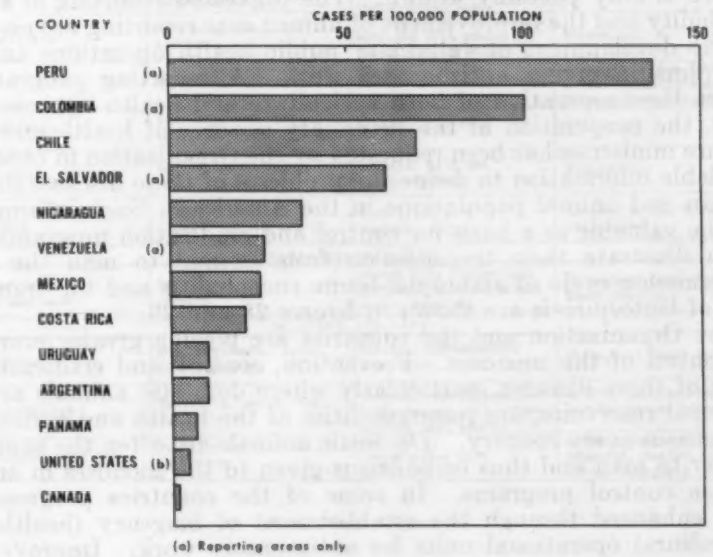


*Deaths per 100,000 live births

Source: P A H O, Scientific Publication No. 40. United Nations Statistical Office

FIGURE 25

REPORTED CASES OF TYPHOID AND PARATYPHOID FEVER PER 100,000 POPULATION, IN SELECTED COUNTRIES OF THE AMERICAS, 1958



(a) Reporting areas only

(b) Year 1957

J. ZOONOSES

Although the word "zoonoses" is a relatively new one, the diseases are not new. The Joint WHO/FAO Expert Committee on Zoonoses defines the zoonoses as those diseases and infections naturally transmitted between vertebrate animals and man. Only in recent years have health services and the medical sciences begun to study zoonoses with the detailed attention given to other and better known diseases.

The zoonoses have a double-edged effect. First, they are a menace to human health. The existence of zoonoses in rural areas not only can lead to sickness and loss of life of the rural population, but also may spread to the urban population. An example of this can be seen in figure 27 from a study of 637 brucellosis cases reported in the U.S.A. in 1957, of which 41 percent lived in urban areas.

Second, the zoonoses exact a heavy toll on the economics of both urban and rural regions. The farmer's loss by the depletion or the nonproductivity of his stock because of zoonoses is easily seen as a direct economic one. It is a little more difficult to see how these diseases cause economic losses in urban areas, yet they do this also. In addition to increasing expenditures for medical care in urban areas, these diseases reduce the food supply available in a country and thus they increase food prices, especially in the nutritionally important animal protein foods. Other animal byproducts, such as wool and leather, also are increased in price because of the toll caused by zoonoses.

More than 100 zoonoses are now recognized, and in figure 26 are listed certain data on the major zoonoses in the Americas. As can be seen, the geographical distribution of these diseases in the hemisphere is only partially known. The organized reporting of animal morbidity and the improvement of human case reporting are essential to the development of veterinary public health operations and the programs involving antizoonoses work. A reporting program requires the cooperation of both agriculture and health agencies. In 1959, the cooperation of the veterinary services of health and agriculture ministries has been requested by the Organization in obtaining available information to define the problems of these diseases in both human and animal populations in the Americas. Such information will be valuable as a basis for control and eradication programs.

To illustrate their transmission from animal to man the basic transmission cycle of arthropod-borne encephalitis and the transmission of leptospirosis are shown in figures 28 and 29.

The Organization and the countries are placing greater emphasis on control of the zoonoses. Prevention, control, and eradication of some of these diseases, particularly where domestic animals are the principal reservoirs, are responsibilities of the health and agriculture agencies in every country. Domestic animals are often the source of danger to man and thus emphasis is given to the zoonoses in animal disease control programs. In some of the countries progress has been enhanced through the establishment of biagency (health and agriculture) operational units for antizoonoses work. Improvement has been made also by the development of veterinary public health services at various levels of the health services in the countries of the Americas.

FIGURE 26

ANIMALS INVOLVED, MODE OF HUMAN INFECTION AND GEOGRAPHIC DISTRIBUTION OF MAJOR ZOONOSES IN THE AMERICAS

Diseases	Animals principally involved	Usual modes of human infection	Known geographic distribution
VIRUS DISEASES			
Encephalitis, arthropod-borne	Horse, mule, birds	Mosquito bite	Widespread
Psittacosis	Parrot, parakeet, hen, duck, pigeon, turkey	Inhalation, contact	Canada, United States, Brazil
Rabies	Dog, cat, wolf, fox, bat, skunk	Animal bite	Widespread
Jungle yellow fever	Monkey, other vertebrates	Mosquito bite	Jungle areas
RICKETTSIAL DISEASES			
Q fever	Rat, cow, sheep, horse, dog, goat	Inhalation, tick bite	Widespread
Spotted fever (Rocky Mountain, Brazilian, Colombian)	Wild rodents, other animals	Tick bite	Canada, United States, Mexico, Panama, Brazil, Colombia
Typhus fever (murine)	Rat	Flea bite	Widespread
BACTERIAL DISEASES			
Anthrax	Cow, horse, sheep, goat, swine, wild animals	Contaminated wool, hair, hides, air, food, water	Widespread
Brucellosis	Cow, hog, goat, sheep, horse, dog	Occupational exposure, milk, meat or other contaminated food	Widespread
Leptospirosis	Rat, dog, cow, hog, rodents	Contact of skin or mucous membrane with contaminated water or dust	Widespread
Plague	Rodents	Flea bite	Areas in United States, Argentina, Bolivia, Brazil, Ecuador, Peru, Venezuela
Salmonellosis	Cow, hog, hen, sheep, rat, dog, cat	Contaminated food	Widespread
Tuberculosis, bovine	Cattle, goat, swine, cat	Contact, milk and dairy products	Widespread
Tularemia	Wild animals, birds	Tick bite, skin contact, water	Canada, United States, Venezuela
PROTOZOAL DISEASES			
(Chagas' disease) Trypanosomiasis	Cat, dog, rodents	Insect bite (Reduviidae triatoma) skin abrasions mucous membrane	Throughout Central and South America
HELMINTH DISEASES			
Hydatidosis	Dog, ruminants, swine, fox, rodents	Contact, contaminated food, water	Throughout South America
Schistosomiasis	Ruminants, swine, dog, cat	Skin contact with water contaminated with intermediate host snails	Brazil, Surinam, Venezuela and Caribbean islands
Trichinosis	Swine, rodents, wild carnivores	Contaminated meat	Canada, United States, Honduras, Mexico, Argentina, Chile, Venezuela

As a result of requests from member countries for more help in this field, the Organization established in 1956, through the generous cooperation of the Government of Argentina, the Pan American Zoonoses Center in Azul, Argentina. The services of this center are available to health departments, agricultural departments, educational institutions and other agencies. It serves in the education and training of professional and technical personnel, stimulates control and eradication campaigns, conducts and promotes research, aids in the standardization of diagnostic methods and procedures, and prepares and disseminates information about these diseases. These activities are aimed to reduce the social and economic burden caused by disease transmitted between animals and man.

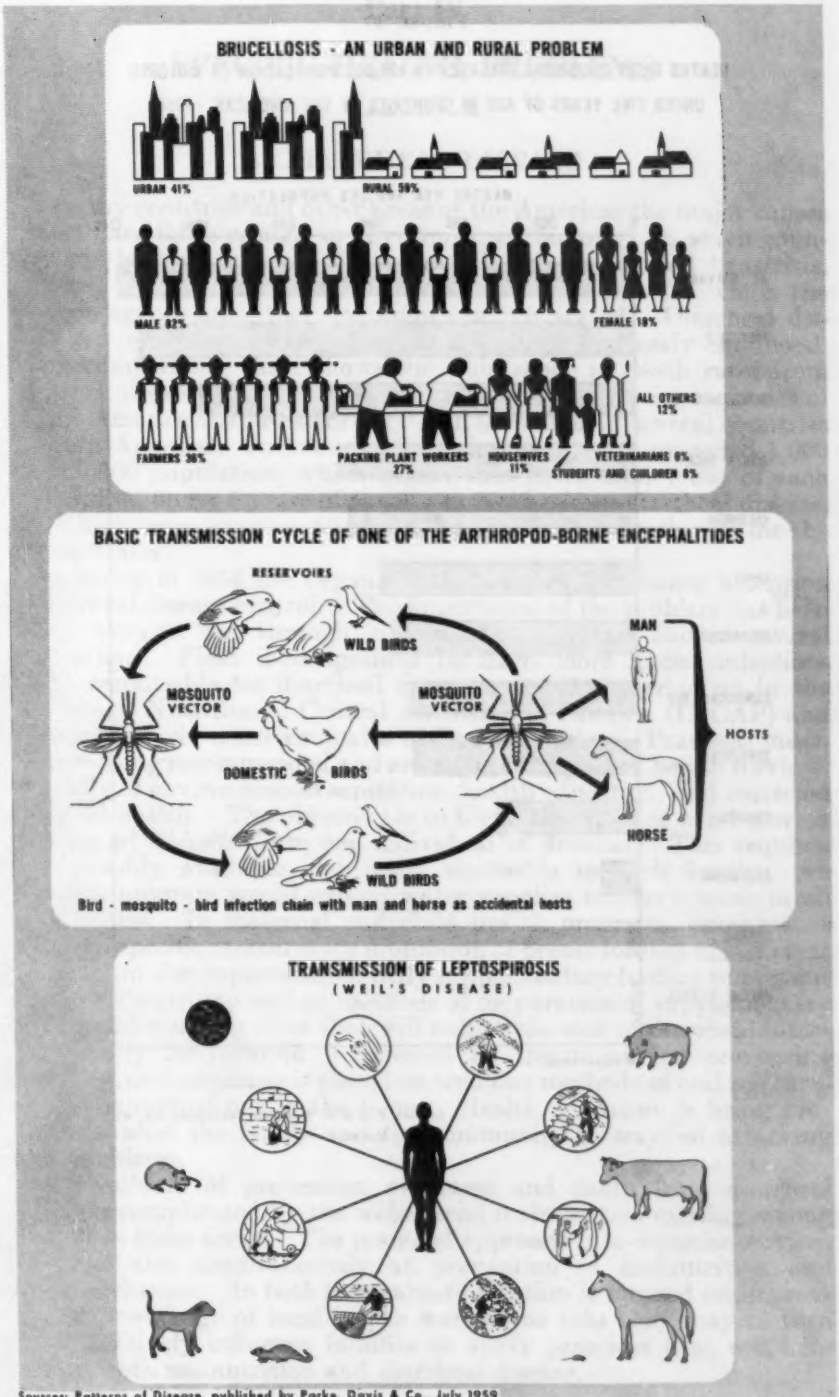
The Pan American Zoonoses Center has been financed principally by international funds (the Organization, OAS, and UN Technical Assistance) and annual contributions made by the Government of Argentina. Additional support must be obtained for the long-term financing of this operation in which the governments of the Americas act together toward the solution of a group of problems seriously affecting the health and economy of their populations.

The machinery is now set for much better attention to these diseases of socioeconomic importance but much is yet to be done. Health and agriculture agencies are now more cognizant of the magnitude of the zoonoses but funds for programs must of necessity be greatly increased if the countries are to make any real progress. Disease research programs and educational institutions must play fully their vital roles in this field.

In the United States, Canada, Venezuela, and parts of Central America, the incidence of bovine tuberculosis has been greatly reduced, while in the balance of the countries the cost and danger to the public of this disease is not known. It may well be that one of every three cows is a health hazard to its human associates. Canada and the United States are reducing the incidence of brucellosis markedly each year but little is being done to overcome this problem in other countries.

While Uruguay through dog control and vaccination has rid itself of rabies, this frightening disease is still a problem in all other countries of the Americas. Fortunately, total deaths are few but each year thousands of persons, the majority of them children, undergo the Pasteur treatment of 14 to 21 injections of rabies vaccine. The treatment itself is not without danger. Research has yet to determine the way to minimize or eliminate the baffling problem of rabies in bats. In the United States, since 1953, over 300 bats from scattered sites in 19 States have been diagnosed as positive for rabies. Concerted efforts must be brought to bear on this and other zoonotic problems.

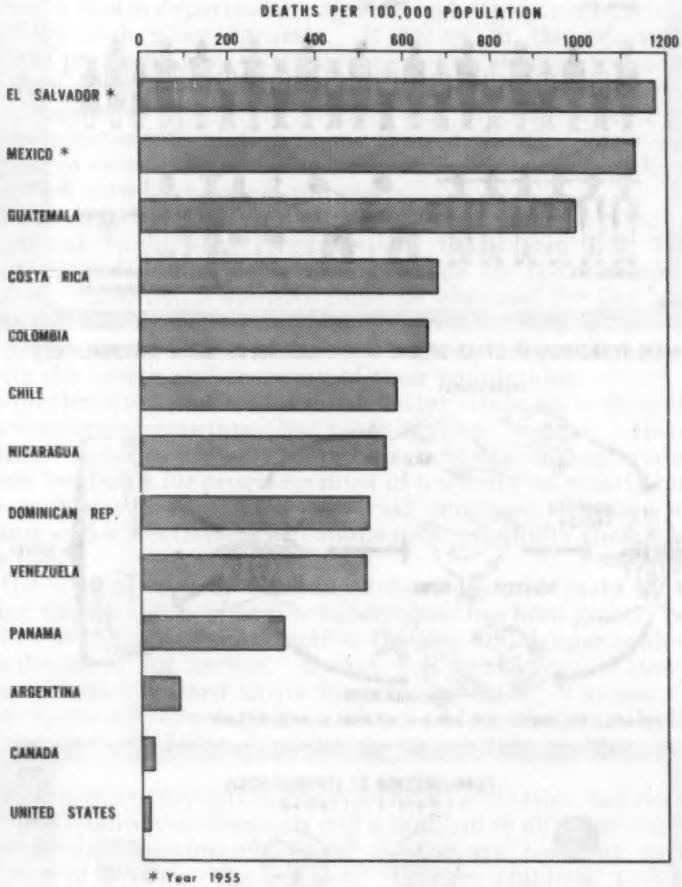
FIGURE 27–29



Sources: Patterns of Disease, published by Parke, Davis & Co., July 1959
George Williams Hooper Foundation Univ. of Calif. Med. Center, 1954

FIGURE 30

DEATHS FROM DIARRHEAL DISEASE PER 100,000 POPULATION OF CHILDREN UNDER FIVE YEARS OF AGE IN COUNTRIES OF THE AMERICAS, 1956



* Year 1955

Sources: P A H O, Scientific Publication No. 40
United Nations

Part IV

SPECIFIC HEALTH PROBLEMS

A. DIARRHEAL DISEASE

In many countries and other areas of the Americas the major causes of death are those related to environmental factors. In seven countries the leading cause of death was the group entitled "gastritis, enteritis, etc.," which includes the diarrheal diseases for which the etiologic agents are either not known or not stated. Diarrheal diseases are important causes of death in infancy and early childhood. The accompanying chart shows the wide range in death rates from diarrheal disease in 13 countries of the Americas. In the countries of Middle America the rates are very high as well as in several countries of South America. In two countries the death rates exceeded 1,000 per 100,000 population, which means that more than 1 out of each 100 children under 5 years of age die each year from diarrheal disease. These high rates are over 60 times the comparable death rate for the United States.

Beginning in 1954 the Organization has given increasing attention to diarrheal disease control. The importance of the problem has been clearly brought out through international seminars and in several publications. Field investigations to learn more about infectious agents responsible for diarrheal disease are being carried on in the Institute of Nutrition of Central America and Panama (INCAP) and independently in other countries of Latin America. Practical measures are being recommended and are an integral part of health services, especially of environmental sanitation, health education, and maternal and child health. The objective is to break the chain of hand-carried infection of *Shigella* from one individual to another. This requires water readily available and easily accessible to each family. An optimum program would extend water supplies to every home in all communities. In maternal and child health programs, emphasis is placed on specific measures for promotion of breast feeding of sufficient duration, on the importance of early supplementary feeding to prevent protein malnutrition and on methods of preparation of supplementary feeding and weaning diets that will reduce the risk of diarrheal infection. Early rehydration is stressed as treatment for preventing mortality, and emphasis is placed on teaching methods of oral rehydration to be carried out in the home. Health education is being promoted to alert the family and the community to ways of attacking these problems.

The problem of prevention of illness and death from diarrheal disease is complicated by the widespread malnutrition existing among children in these areas. The practical approach is to organize services that will aim simultaneously at prevention of malnutrition and diarrheal disease. In both these areas attention is focused on improving the knowledge of local health workers so that they may in turn more effectively influence families to apply practices that will help prevent both malnutrition and diarrheal disease.

B. NUTRITION

Nutritional problems in the Americas are serious and have received increasing attention in the last 10 years. A much clearer picture has been obtained of the size of the problems involved in food consumption and also of the major nutritional disorders which are the result of deficiencies. The problem of nutritional disorders is complex since they are the result of three major factors: namely, shortage of production of essential protective foods, lack of purchasing power, and ignorance of the value of certain foods for human consumption.

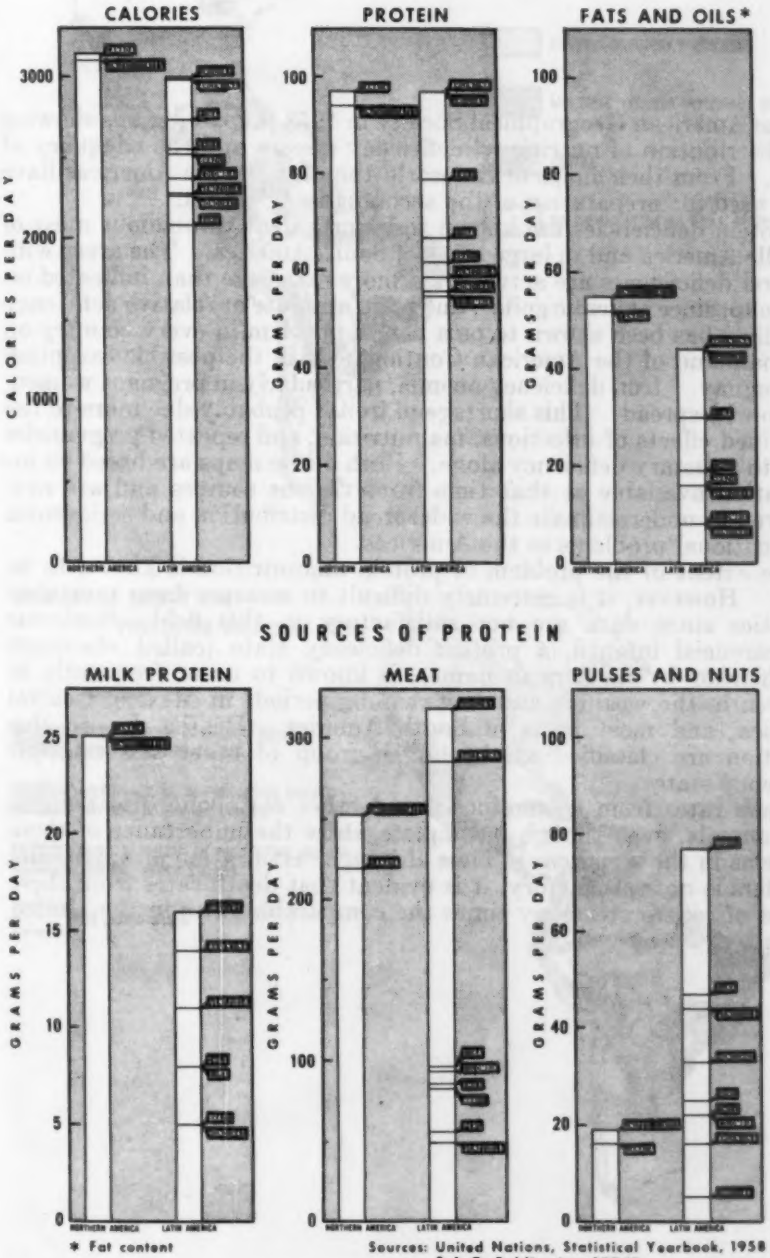
The problems center in the Americas principally around low protein consumption with resulting protein malnutrition and low animal fat consumption leading to vitamin A deficiency. In addition there are other disorders specific to certain areas, particularly endemic goiter.

Data are shown first to give a visual picture of shortages in daily consumption of calories, protein, and fats and oils. The quality of the protein is described by showing the consumption by source, namely milk protein, meat, and protein from vegetable origin (pulses and nuts).

Data from FAO which were available for only about half of the countries of the Americas are shown graphically to illustrate the great variation. In these countries per capita consumption ranged from 2,080 to 3,140 calories daily. The amount of protein and of fats and oils consumed has a wide range with relatively high values in a few countries and much lower value in others. Furthermore, in countries where daily consumption is low, the deficiency in protective foods is relatively greater than in total calories. In addition, in countries where consumption of animal protein is low, as shown through consumption of milk protein and of meat, the consumption of protein of vegetable origin, such as pulses and nuts, is high. Since these latter are not readily usable in the diets of young children, a serious problem of protein malnutrition occurs at weaning and postweaning periods in the absence of protein from animal origin, particularly milk.

FIGURE 31

PER CAPITA DAILY CONSUMPTION OF CALORIES, PROTEINS, FATS AND OF IMPORTANT SOURCES OF PROTEIN IN SELECTED COUNTRIES OF THE AMERICAS IN A RECENT YEAR



* Fat content

Sources: United Nations, Statistical Yearbook, 1958
F A O, Publication C57/8

48756 O—60——5

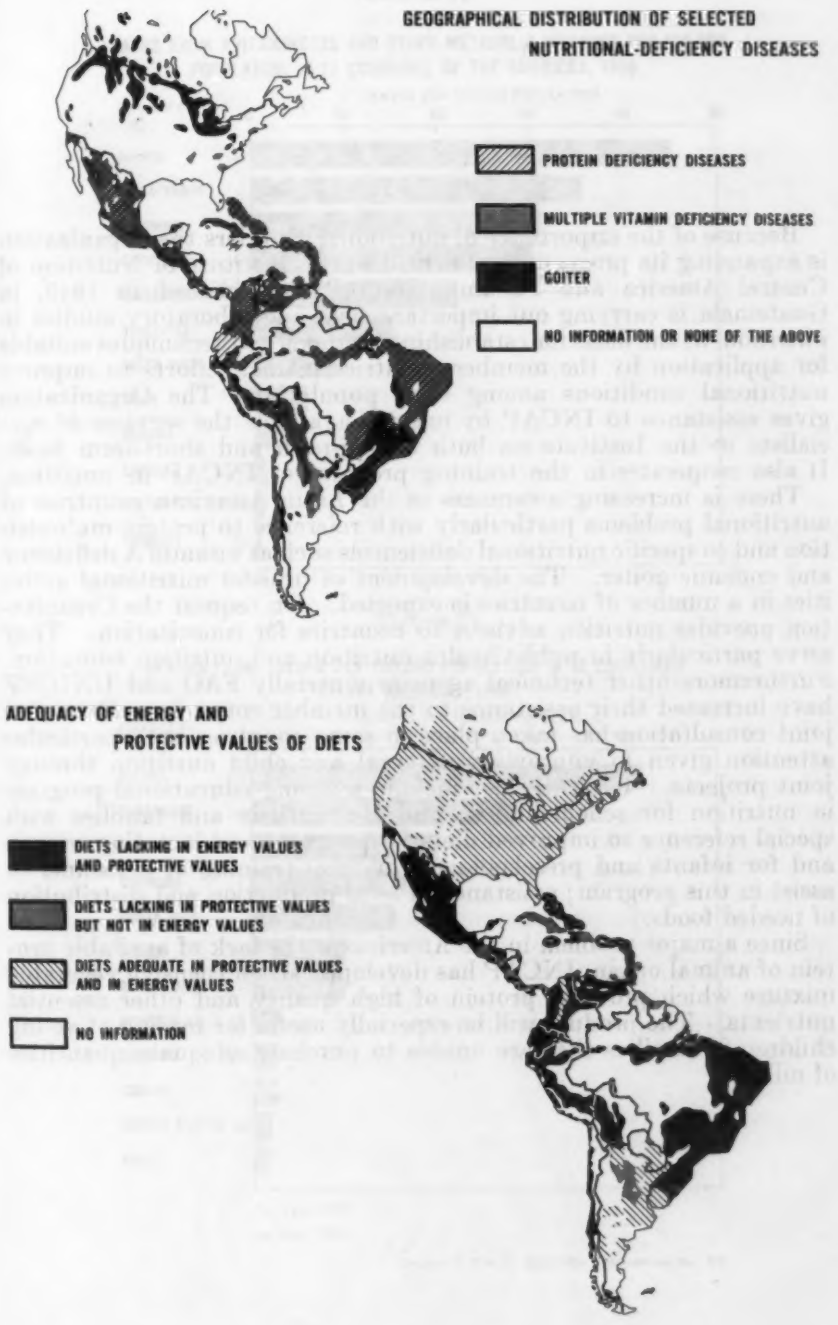
The American Geographical Society in 1953 prepared maps showing the distribution of nutritional deficiency diseaes and the adequacy of diets. From their maps of the world the data for the Americas have been used for preparation of the accompanying charts.

Protein deficiencies are known to be prevalent throughout most of Middle America and in large areas of South America. The areas with mineral deficiencies are actually far more extensive than indicated on this map, since endemic goiter, due to an absolute or relative deficiency of iodine, has been shown to be a health problem in every country on the mainland of the American Continent, with the possible exception of Uruguay. Iron deficiency anemia, particularly in pregnant women, is also widespread. This shortage of iron is probably due more to the combined effects of infections, malnutrition, and repeated pregnancies than to a dietary deficiency alone. Both of the maps are based on information available at that time from various sources and are now believed to underestimate the widespread distribution and seriousness of nutritional problems in the Americas.

The extent of the problem of protein malnutrition is known to be great. However, it is extremely difficult to measure from mortality statistics since data are not satisfactory in this field. Sindrome pluricarencial infantil, a protein deficiency state (called elsewhere kwashiorkor by its African name), is known to occur frequently in children in the weaning and postweaning periods in Mexico, Central America, and most parts of South America. Deaths due to this condition are classified in the larger group of other and multiple deficiency states.

Death rates from avitaminoses and other metabolic diseases and from anemia, even though incomplete, show the importance of these problems in the Americas. Thus although certification of nutritional disorders is not satisfactory, it is evident that death rates from these groups of causes are many times the comparable rates in the United States.

FIGURE 32–33


GEOGRAPHICAL DISTRIBUTION OF SELECTED NUTRITIONAL-DEFICIENCY DISEASES
PROTEIN DEFICIENCY DISEASES
MULTIPLE VITAMIN DEFICIENCY DISEASES
GOITER
NO INFORMATION OR NONE OF THE ABOVE
ADEQUACY OF ENERGY AND PROTECTIVE VALUES OF DIETS
DIETS LACKING IN ENERGY VALUES AND PROTECTIVE VALUES
DIETS LACKING IN PROTECTIVE VALUES BUT NOT IN ENERGY VALUES
DIETS ADEQUATE IN PROTECTIVE VALUES AND IN ENERGY VALUES
NO INFORMATION

Source: Adapted from Atlas of Diseases, Plate 9, American Geographical Society, 1953

Because of the importance of nutritional disorders the Organization is expanding its program in this field. The Institute of Nutrition of Central America and Panama (INCAP), established in 1949, in Guatemala is carrying out important field and laboratory studies in nutrition, as the basis for establishing methods and techniques suitable for application by the member countries in their efforts to improve nutritional conditions among their population. The Organization gives assistance to INCAP by making available the services of specialists to the Institute on both a long-term and short-term basis. It also cooperates in the training program of INCAP in nutrition.

There is increasing awareness in the Latin American countries of nutritional problems particularly with reference to protein malnutrition and to specific nutritional deficiencies such as vitamin A deficiency and endemic goiter. The development of broader nutritional activities in a number of countries is expected. On request the Organization provides nutrition advisers to countries for consultation. They serve particularly in public health nutrition and nutrition education. Furthermore other technical agencies especially FAO and UNICEF have increased their assistance to the member countries. Extensive joint consultation has taken place in some countries with particular attention given to improving maternal and child nutrition through joint projects. The activities include a strong educational program in nutrition for schoolchildren and for mothers and families with special reference to improved diets for pregnant and lactating women and for infants and preschool-age children; training of personnel to assist in this program; assistance in local production and distribution of needed foods.

Since a major problem in the Americas is the lack of available protein of animal origin, INCAP has developed an inexpensive vegetable mixture which provides protein of high quality and other essential nutrients. The product will be especially useful for feeding of young children in families that are unable to purchase adequate quantities of milk.

FIGURE 34

DEATHS FROM AVITAMINOSES AND OTHER METABOLIC DISEASES PER 100,000 POPULATION IN 12 COUNTRIES OF THE AMERICAS, 1956

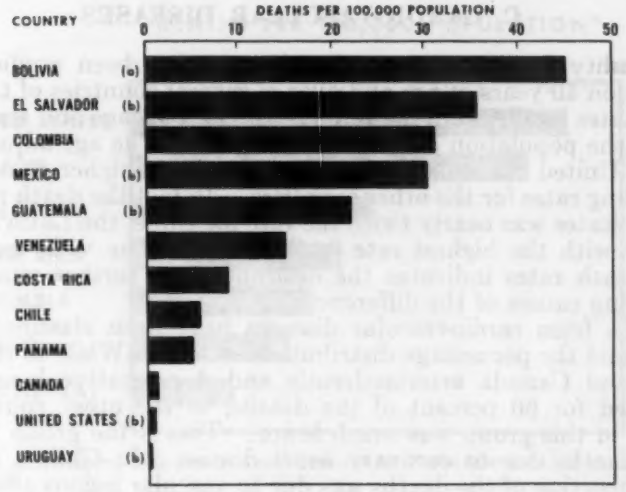
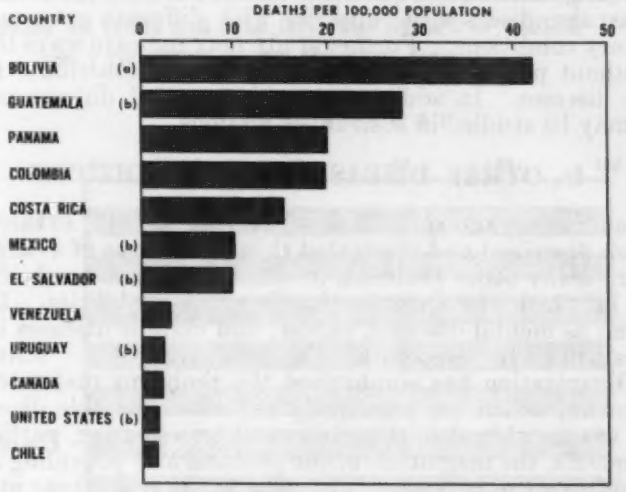


FIGURE 35

DEATHS FROM ANEMIA PER 100,000 POPULATION IN 12 COUNTRIES OF THE AMERICAS, 1956



(a) Year 1953

(b) Year 1955

Source: P A H O. Scientific Publication No. 40

C. CARDIOVASCULAR DISEASES

Mortality from cardiovascular diseases has been studied in the population 40 years of age and over in several countries of the Americas. Rates in all countries were adjusted to the age and sex distribution of the population of the United States. The age-adjusted rates for the United States and Canada were much higher than the corresponding rates for the other countries. In fact the death rate in the United States was nearly twice the rate for Chile, the Latin American country with the highest rate in the group. The wide variation in these death rates indicates the desirability of further study of the underlying causes of the differences.

Deaths from cardiovascular diseases have been classified in four groups and the percentage distributions shown. While in the United States and Canada arteriosclerotic and degenerative heart disease accounted for 60 percent of the deaths, in the other countries the percent in this group was much lower. This is the group which includes deaths due to coronary heart disease. In Chile a relatively high proportion of the deaths was due to vascular lesions affecting the central nervous system, while in Mexico and Colombia high percents were classified as "other diseases of the heart."

Study of mortality from cardiovascular diseases indicates that there are several problems needing further clarification. These include specific investigation of the methods of certification and research on cardiovascular diseases in countries with different economic, social, and dietary conditions. Further study may indicate ways to improve diets without promoting food habits that may contribute to cardiovascular diseases. In addition to environmental differences, genetic factors may be studied in such investigations.

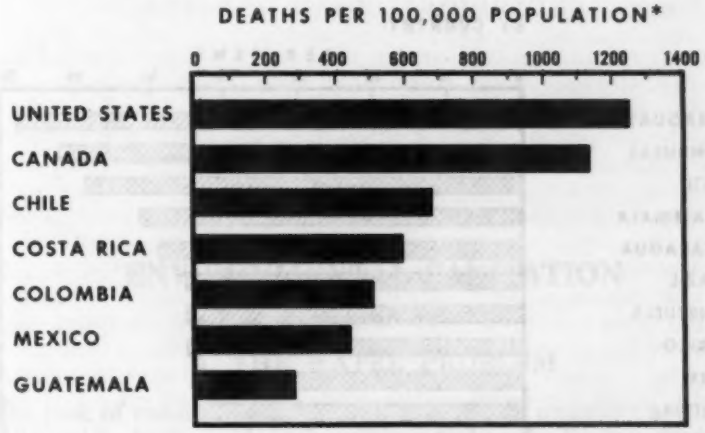
D. OTHER DISEASES AND CONDITIONS

Several diseases and conditions of great importance in the Americas have been described and illustrated through the use of available data. There are many other problems in which programs are being carried on and in which the Organization has responsibilities. In several fields such as mental diseases, cancer, and chronic diseases increasing activities will be required within the next 20 years.

The Organization has emphasized the problems major to most of the countries, which are principally the communicable diseases. In the field of mental health, there is a need for assessing, particularly in Latin America, the magnitude of the problem and providing advice on the development of services. Planning in many of these other fields will also require additional data regarding the specific problems and resources and facilities for programs.

FIGURE 36

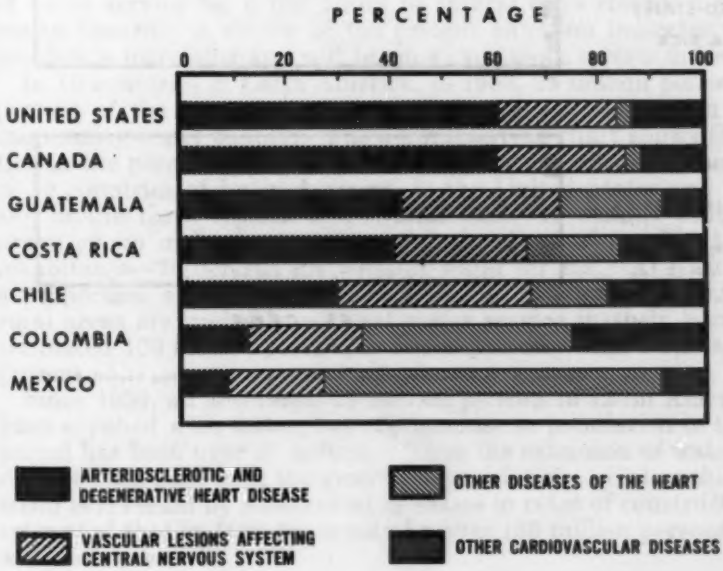
DEATHS FROM CARDIOVASCULAR DISEASES PER 100,000 POPULATION IN AGE GROUP 40 YEARS AND OVER IN 7 COUNTRIES OF THE AMERICAS, 1954



* RATES ADJUSTED TO AGE AND SEX DISTRIBUTION OF POPULATION OF THE U.S.A. IN 1954

FIGURE 37

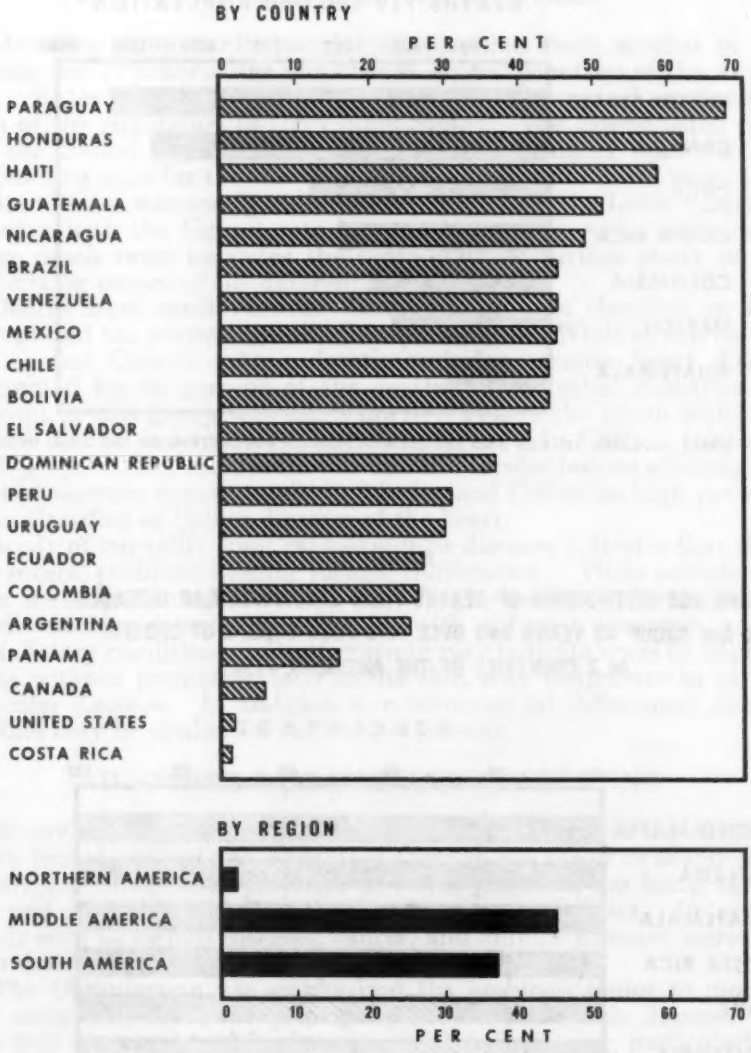
PERCENTAGE DISTRIBUTION OF DEATHS FROM CARDIOVASCULAR DISEASES IN AGE GROUP 40 YEARS AND OVER INTO FOUR GROUPS OF CAUSES, IN 7 COUNTRIES OF THE AMERICAS, 1954



Source: Bulletin of WHO, 1958, 19 pp. 315-324

FIGURE 38

PER CENT OF POPULATION WITHOUT WATER SERVICE IN CITIES WITH 2,000 OR MORE INHABITANTS IN COUNTRIES OF THE AMERICAS



Source: Wolman, A., Technical Discussion, XI Meeting of the Directing Council, PAHO.

Part V

ENVIRONMENTAL SANITATION

A. THE WATER PROBLEM

The lack of readily available water, in ample quantity and of good quality, ranks high as a health problem and as the first environmental sanitation problem in most of the countries in Middle and South America. Unless present rates of construction of urban waterworks are substantially increased, with expected increases in population in urban areas, there will be hardly a large city capable of furnishing all of its inhabitants with an adequate and reliable water supply. Today a considerable proportion of their population do not have readily accessible water and this results in a high incidence of gastrointestinal disease, unfavorable hygienic conditions, hampered industrial development, and in the creation of social problems. In cities in which houses are connected to water systems, frequent interruption of water service for a few hours to several days creates a potential health hazard. A review of the present situation indicates that the problem is increasing and will become even more serious in the future.

In 19 countries in Latin America, in 1958, 29 million persons, or 39 percent of the urban population, were without water from a piped community water supply. The accompanying chart shows the variation in the percentages of the urban population without water service in 19 countries of Latin America, in the United States and Canada, and in the three regions of the Americas. In smaller cities in the urban group in Latin America—that is, those with 2,000 to 10,000 inhabitants—70 percent are without water service. At least as large a proportion of the 107 millions living in smaller communities and rural areas are probably without water service in their homes. An estimated 100 million persons in Latin America need water service at present.

Since 1950, an additional 21 million persons in Latin America have been supplied with water, but the increase in population in this same period has been over 30 million. Thus the extension of water service did not keep pace with the growth of population. Unless this present trend is reversed by substantial increases in rates of construction, it is estimated that in 1980 there may be over 150 million persons without water service.

The transmission of diarrheal disease is directly affected by availability and quality of water. Personal and household cleanliness cannot be expected where water is not readily available in the homes and has to be transported.

At this stage there are two major obstacles to provision of water supplies to the population. First, many water supply systems have not been placed on a sound administrative and fiscal basis. In fact, many of the systems are not self-supporting. The consumers must be prepared to contribute to the cost as they do for other public services. Second, it is not easy to find funds at low interest rates and on a long repayment basis to finance expansion of existing works and construction of additional works. Local and international banks generally give preference in making loans to income-producing enterprises. Although industry is dependent on water, loans for new construction and extension of water supplies have been few. However, such loans have been made on favorable terms by the U.S. Development Loan Fund.

In addition to these financial obstacles, there are problems of engineering, operation, management and training of personnel. Most countries need assistance in all phases of the program.

A global water program for the health of the world's peoples was given unanimous endorsement by the 1959 World Health Assembly, and the regional water program was endorsed by the 1959 Directing Council of the Pan American Health Organization.

In June 1959, a statement of policy of the Organization was prepared as a guide in rendering technical assistance to governments for the water program. The principles of assistance are outlined in the chart on the opposite page.

In late 1959 the U.S. Government announced special grants of $300,000 to WHO and $200,000 to PAHO to be made as the initial voluntary contributions to special water funds established by WHO and PAHO for studies and technical assistance to member nations for improving their water supplies. With these funds the organizations will help member governments in surveys, demonstrations, technical advice, and training of personnel for expanded water supply programs so essential for progress in health. To these special funds, additional and increasing voluntary contributions from member states will be required over an extended period of time to assist all countries in developing water supply organizations which are self-sufficient and can resolve the problems associated with national growth. Funds for the water supply program will not only result directly in improvement of health but will also have a tremendous influence on standards of living, on housing, on increased agricultural productivity, and on industrial expansion and growth.

Of all the health measures which can be taken to improve the environment of man, abundant and safe water within each home will provide the greatest return.

FIGURE 39

WATER PROGRAM FOR THE REGION OF THE AMERICAS

A. To assist Member Governments in supplying water to an increasing proportion of their population.

B. To stress the importance of water for economic and community development. Water is a commodity indispensable to health, industry and housing.

C. To aid Governments in the study of organizational structure leading to sound business methods in the planning, operation and management of existing systems and in the development of new systems.

D. To assist Governments in finding methods for financing water improvements, extensions and expansions.

E. To stress that projects of integrated health services should include activities on urban water supplies.

F. To emphasize the value of strong environmental sanitation organizations within Governments.

G. To promote training of sanitary engineers and sanitarians.

H. To extend activities through ministries of health to other ministries, departments and authorities with responsibility for water programs.

B. SEWAGE AND EXCRETA DISPOSAL FACILITIES

Most cities do not have adequate sewage disposal systems and in rural areas many houses lack the simplest of excreta disposal facilities. The provision of water must have priority in environmental health programs but the second highest priority must be given to those for excreta and sewage disposal facilities. In specific instances such as in a city with a satisfactory water system it may be the major problem. The same obstacles confront the countries in its solution as in the case of water systems. The collection of revenue for sewage disposal systems is even more difficult. In rural areas, programs are being stimulated in which the people pay partial or complete cost of their latrines. Good administrative and finance methods in the management of sewage disposal systems offer the best hope for countries to progress in these fields.

Adoption of sound administrative practices, availability of loan funds at low interest rates and on long-term repayment basis, and more and better trained personnel will be required for expansion. International assistance will be available for technical advice and training programs.

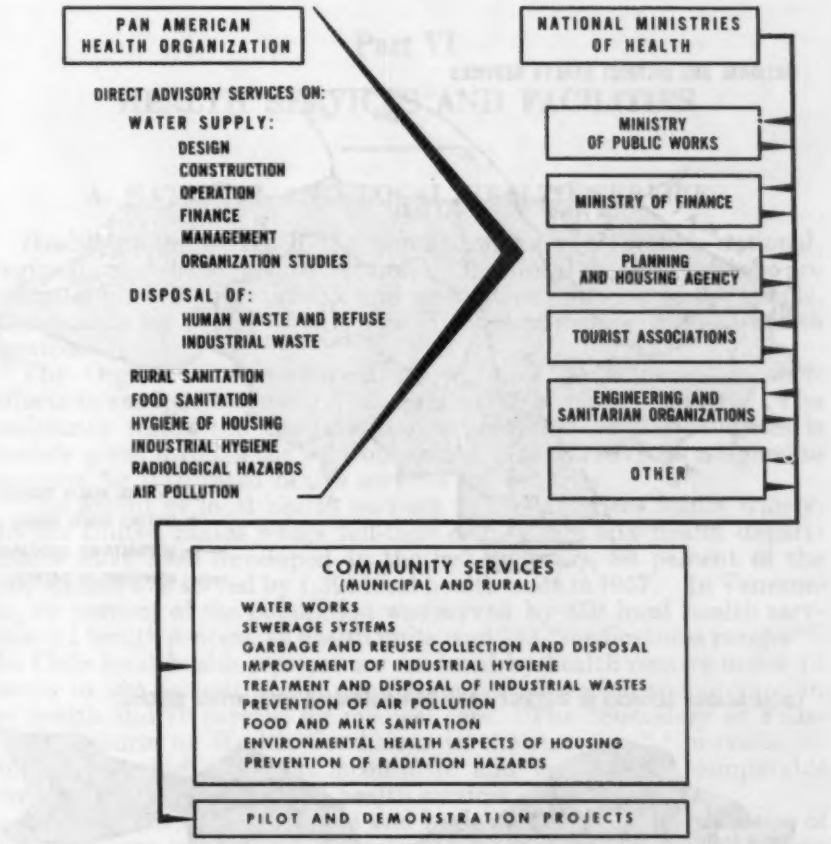
C. OTHER ENVIRONMENTAL SANITATION PROBLEMS

Other environmental conditions which affect the health of the population involve housing, food and milk sanitation, occupational hygiene, disposal of industrial waste, garbage and refuse disposal, and radiation hazards of the environment. The most pressing problems and their severity will vary by community. Many require surveys and studies, training of personnel, and better facilities.

Some of the types of assistance available to the member governments through the environmental sanitation program of the Organization are shown on the accompanying diagram. Also indicated are channels through which consultant service and guidance are provided. The objective of all assistance is to help countries help themselves.

FIGURE 40

CHANNELS AND KINDS OF ASSISTANCE TO GOVERNMENTS IN ENVIRONMENTAL SANITATION



EDUCATION AND TRAINING

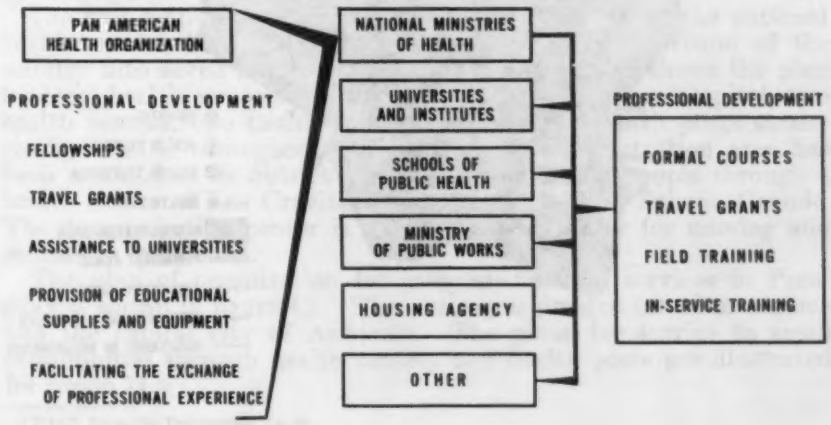
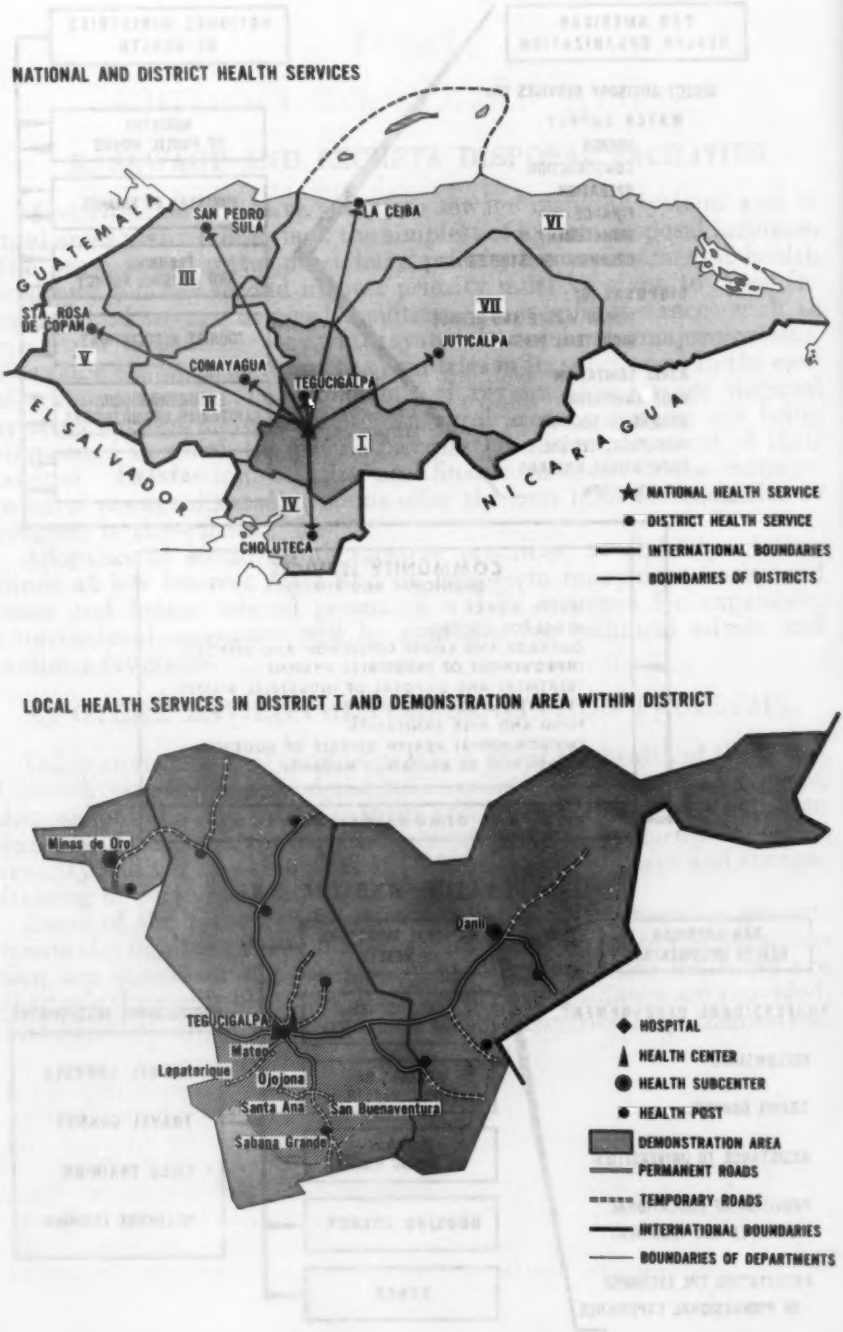


FIGURE 41

PLAN OF ORGANIZATION FOR INTEGRATED HEALTH SERVICES IN HONDURAS



Part VI

HEALTH SERVICES AND FACILITIES

A. NATIONAL AND LOCAL HEALTH SERVICES

Health programs reach the population mainly through national, regional, and local health services. The local health services are essential for bringing curative and preventive medicine to the people. The goal is for complete coverage of the Americas with local health services.

The Organization is cooperating with the governments in their efforts toward expansion and reorganization of health services. The assistance which the Organization is providing to the countries is mainly given through the zone offices and through advisers assigned to projects for integrated health services in countries.

The extent of local health services in the Americas varies widely. In the United States where full-time county and city health departments have been developed in the last 40 years, 89 percent of the population was served by 1,396 local health units in 1957. In Venezuela, 88 percent of the population was served by 450 local health services (11 health centers, 46 health units, and 393 "medicaturas rurales"). In Chile local health services are rendered by health centers under 15 zones to 100 percent of the population for protection and promotion of health and 70 percent for medical care. The "Summary of Four-Year Reports on Health Conditions in the Americas" [1] provides information which may be incomplete and not strictly comparable regarding the extent of local health services in the Americas.

The pattern of medical care and health services in the countries of the Americas will necessarily vary. Three examples show the plans being made for development of health services in Honduras, Panama, and Paraguay.

The first figure shows in the top map the location of the national health service in Tegucigalpa, Honduras, and the division of the country into seven health districts. The lower map shows the plan for local health services in district I which will have a hospital, two health centers, two health subcenters and nine health posts strategically located throughout the district. A demonstration area has been established in district I which serves 66,000 people through a health center of Las Crucitas and a health post in Sabana Grande. The demonstration center is also a training center for nursing and sanitation personnel.

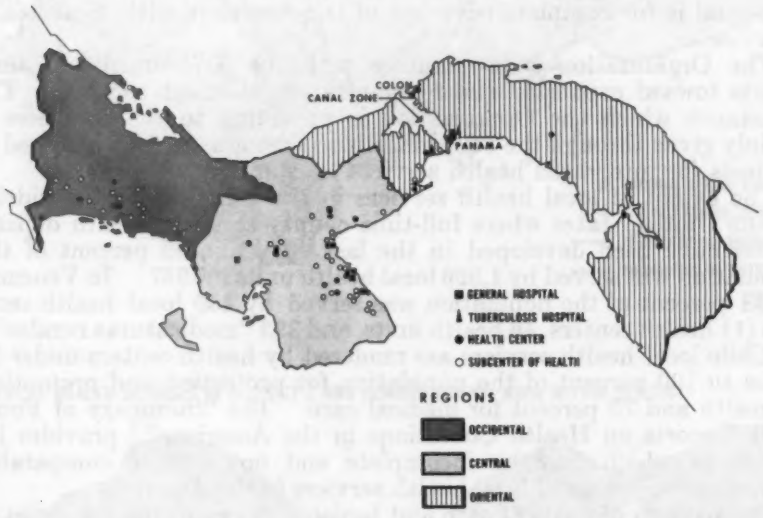
The plan of organization for integrated health services in Paraguay is shown in figure 43. The country is divided into four regions and the capital city of Asunción. The plans for service to small communities through health centers and health posts are illustrated for region II.

[1] PASB Scientific Publication No. 40.

In Panama a reorganization of the Department of Public Health was placed in operation in 1957 at three levels—national, regional, and local. The organization at the national level was improved and the health regions were created. The planned reorganization includes the integration of preventive and curative programs, an extension to the rest of the health centers of the country of the principles and procedures of the demonstration programs at the health center of La Chorrera, and the organization of the health regions.

FIGURE 42

HEALTH CENTERS AND HOSPITALS IN THREE REGIONS OF PANAMA

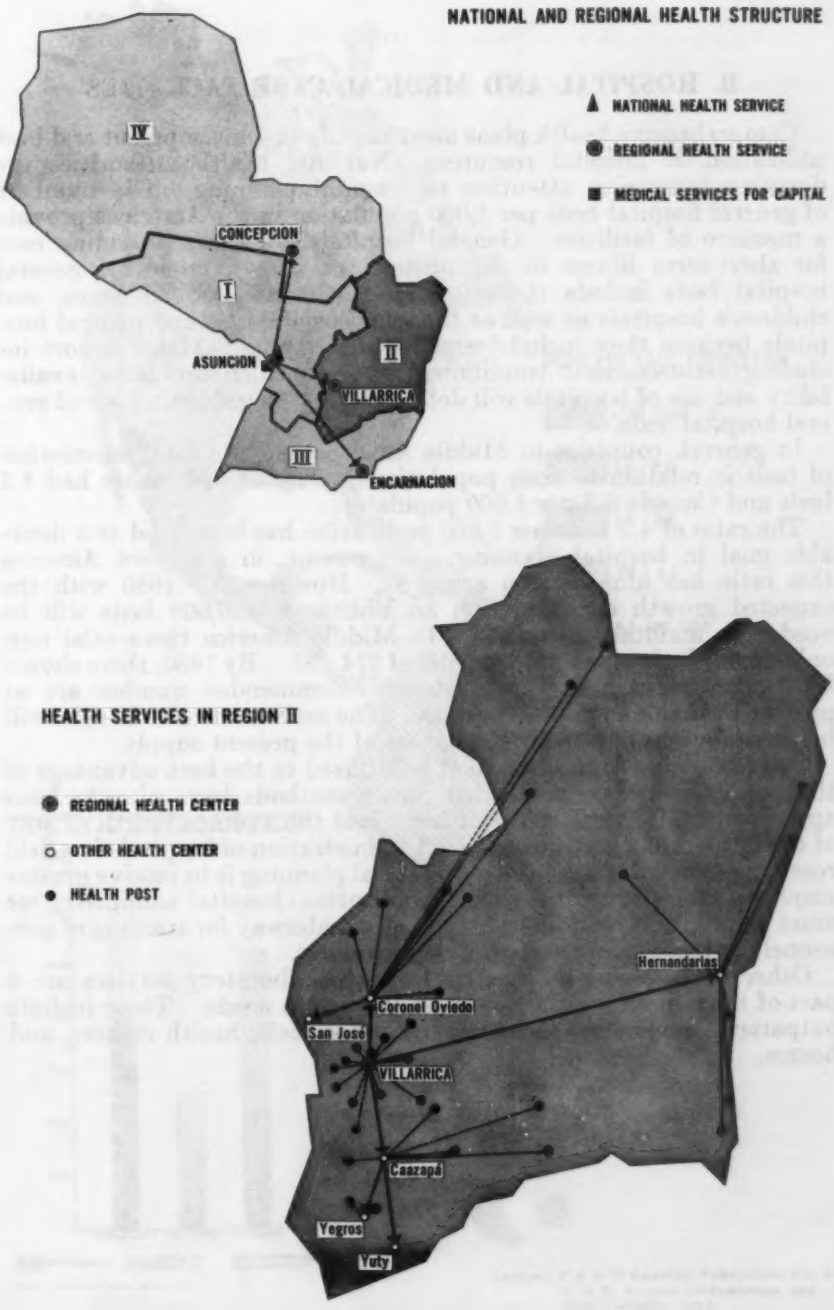


In the past 4 years the ministers and directors of health of the member governments and the Directing Council and the staff of the Pan American Health Organization have been intimately concerned with national health planning. In its annual meeting in 1955 the Directing Council stressed the preparation by each country of a national health plan as a requisite for the improvement of the health services and for adequate international collaboration. The subjects for its technical discussions for 1956 and 1957 were "Methods for the Preparation of National Public Health Plans" and "Basis and Methods for the Evaluation of Health Programs."

Plans are going forward for complete coverage of the Americas by health services and the need is to implement these plans within the next few years. The attainment of complete coverage will require education and training for personnel as well as the necessary financial resources.

FIGURE 43

PLAN OF ORGANIZATION FOR INTEGRATED HEALTH SERVICES IN PARAGUAY



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B. HOSPITAL AND MEDICAL CARE FACILITIES

Comprehensive health plans must include the development and best utilization of hospital resources. National health authorities are devoting increasing attention to hospital planning. The numbers of general hospital beds per 1,000 population in the Americas provide a measure of facilities. General hospitals are those providing care for short-term illness or for obstetrics. The numbers of general hospital beds include those in maternity, infectious diseases, and children's hospitals as well as those in hospitals termed general hospitals because they include services of all types. Many factors including secioeconomic conditions, specific health problems, availability and use of hospitals will determine the desirable number of general hospital beds.

In general, countries in Middle America had the smallest number of beds in relation to their populations. The United States had 4.2 beds and Canada 6.3 per 1,000 population.

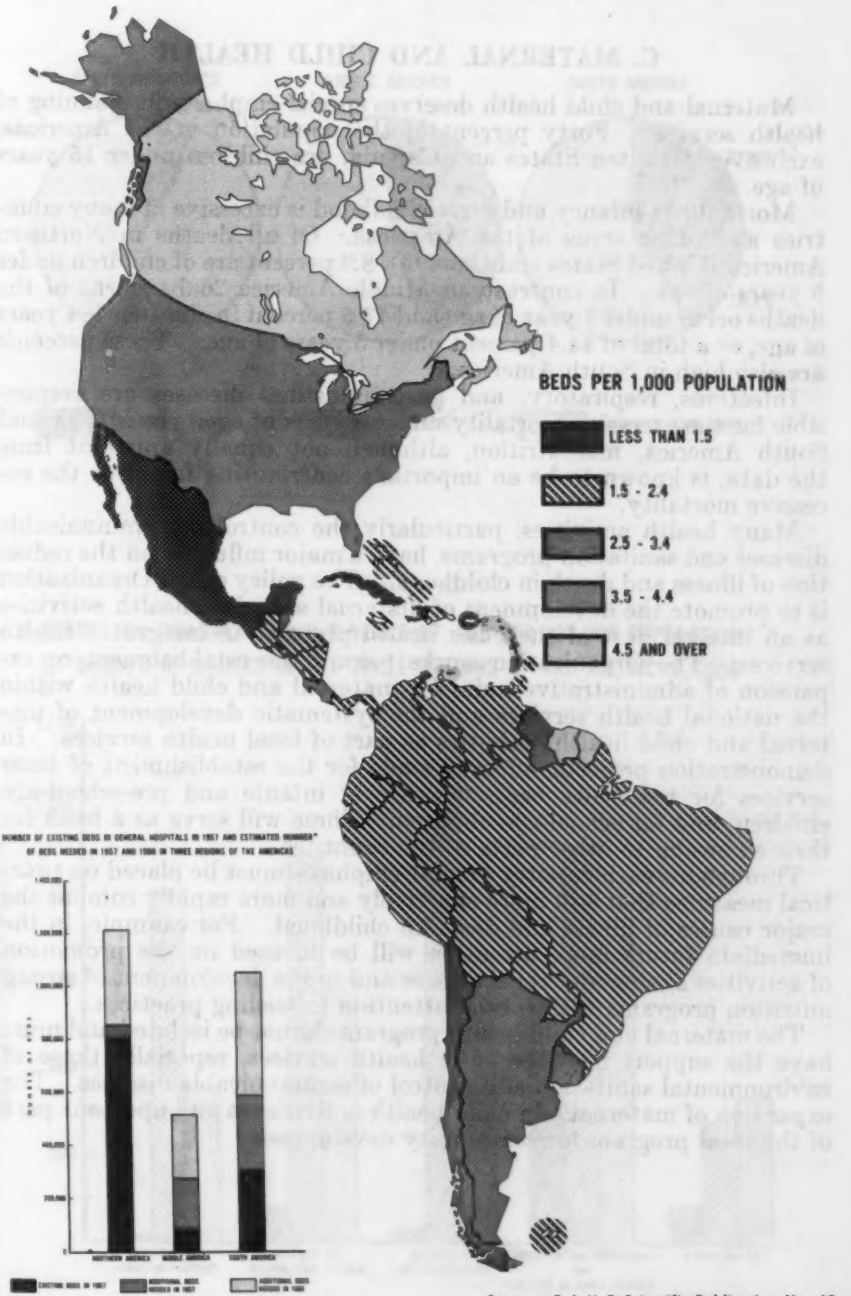
The ratio of 4.5 beds per 1,000 population has been used as a desirable goal in hospital planning. At present, in Northern America this ratio has almost been achieved. However, by 1980 with the expected growth of population an additional 400,000 beds will be needed to maintain this ratio. In Middle America there exist now only 86,000 beds of the needed total of 274,000. By 1980, there should be 243,000 more. Over half of the recommended number are at present available in South America. The estimated need in 1980 will be three-fourths of a million in excess of the present supply.

Beds available at present must be utilized to the best advantage of the population. In the United States methods have already been applied for better utilization of beds, and the average length of stay of the patient has been reduced. Administration of hospitals is a field receiving increasing attention. Hospital planning is to receive greater emphasis in the program of the Organization; hospital administrators must be prepared, and plans are already underway for training of personnel for records and statistics departments.

Other facilities for medical care and for laboratory services are a part of the overall program to meet the health needs. These include outpatient services for medical care in hospitals, health centers, and homes.

FIGURE 44

BEDS IN GENERAL HOSPITALS PER 1,000 POPULATION IN THE AMERICAS, 1957


BEDS PER 1,000 POPULATION
LESS THAN 1.5
1.5 - 2.4
2.5 - 3.4
3.5 - 4.4
4.5 AND OVER
NUMBER OF EXISTING BEDS IN GENERAL HOSPITALS IN 1957 AND ESTIMATED NUMBER OF BEDS NEEDED IN 1957 AND 1980 IN THREE REGIONS OF THE AMERICAS

Sources: P A H O Scientific Publication No. 40
W H O, Annual Epidemiology and Vital Statistics, 1955

C. MATERNAL AND CHILD HEALTH

Maternal and child health deserves special emphasis in planning of health services. Forty percent of the population in the Americas, exclusive of United States and Canada, are children under 15 years of age.

Mortality in infancy and early childhood is excessive in many countries and other areas of the Americas. Of all deaths in Northern America (United States and Canada), 8.3 percent are of children under 5 years of age. In contrast, in Middle America 26.9 percent of the deaths occur under 1 year of age and 17.5 percent in children 1–4 years of age, or a total of 44.4 percent under 5 years of age. These percents are also high in South America.

Infectious, respiratory, and gastrointestinal diseases are responsible for the excessive mortality under 5 years of age. In Middle and South America, malnutrition, although not equally apparent from the data, is known to be an important contributing factor to the excessive mortality.

Many health activities, particularly the control of communicable diseases and sanitation programs, have a major influence on the reduction of illness and death in childhood. The policy of the Organization is to promote the development of maternal and child health activities as an integral part of the basic health program in integrated health services. The Organization works toward the establishment or expansion of administrative units for maternal and child health within the national health services and the systematic development of maternal and child health activities as part of local health services. In demonstration projects, effort is made for the establishment of basic services for maternity care, for care of infants and pre-school-age children, and for school-age children. These will serve as a basis for their extension to other parts of the countries.

Throughout each country greater emphasis must be placed on practical measures that will more effectively and more rapidly combat the major causes of illness and death in childhood. For example, in the immediate future more attention will be focused on the promotion of activities against diarrheal disease and to the development of strong nutrition programs with special attention to feeding practices.

The maternal and child health program cannot be isolated and must have the support of other basic health services, especially those of environmental sanitation and control of communicable diseases. The expansion of maternal and child health activities is an important part of the total program for community development.

FIGURE 45

PER CENT OF TOTAL DEATHS THAT OCCUR IN INFANCY AND EARLY CHILDHOOD IN THE THREE REGIONS OF THE AMERICAS, 1956

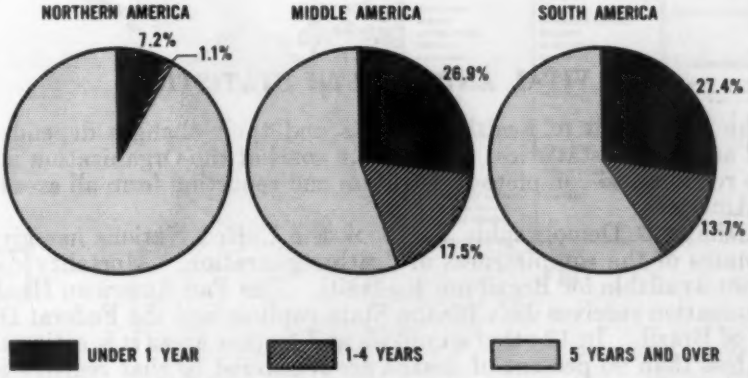
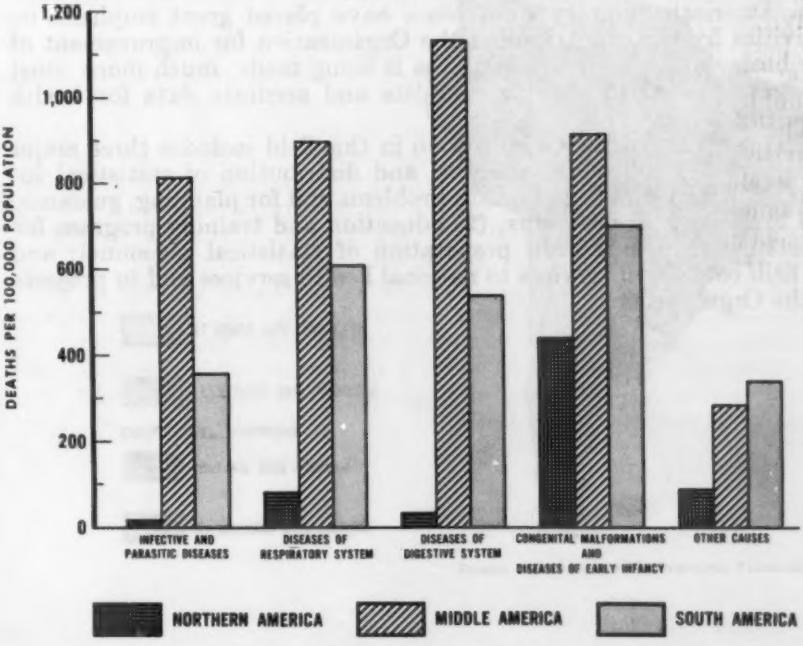


FIGURE 46

DEATHS OF CHILDREN UNDER 5 YEARS OF AGE PER 100,000 POPULATION BY GROUPS OF CAUSES IN THE THREE REGIONS OF THE AMERICAS, 1956



D. VITAL AND HEALTH STATISTICS

The assessment of health problems and their changes depend on vital and health statistics. One of the goals of the Organization is to have reliable and complete registration and reporting from all areas in the Americas.

In the 1957 Demographic Yearbook the United Nations has given estimates of the completeness of death registration. Mortality data are not available for Brazil nor for Haiti. The Pan American Health Organization receives data for the State capitals and the Federal District of Brazil. In 12 other countries and 7 other areas it is estimated that less than 90 percent of deaths are registered or that registration is subject to considerable error. Thus immediate efforts are needed to provide more adequate mortality statistics.

Reporting of cases of notifiable diseases is less complete than death registration. Improvement of case reporting is largely dependent on the extension of health services throughout the Americas. In several countries reporting is limited to the areas served by health centers. The reporting areas in Brazil in 1956 included as little as 11 percent of the population. Progress in eradication and other programs cannot be measured without information on cases of the diseases.

The Pan American Sanitary Code and the resolutions of the XIV Pan American Sanitary Conference have placed great emphasis on activities by the countries and the Organization for improvement of the basic data. Although progress is being made, much more must be accomplished to provide complete and accurate data for health planning.

The program of the Organization in this field includes three major activities: (1) collection, analysis, and distribution of statistical information for definition of health problems and for planning, guidance, and evaluation of programs; (2) education and training program for assistance to countries in preparation of statistical personnel; and (3) field consultant services to national health services and to projects of the Organization.

FIGURE 47

COMPLETENESS OF DEATH REGISTRATION IN THE AMERICAS

Source: United Nations Demographic Yearbook 1957

E. VETERINARY PUBLIC HEALTH SERVICES

The development of integrated health services has required the use of many branches of the health service and personnel of various training. In this evolution the need for veterinarians trained in public health has become evident. In the reorganization of ministries of health with the integration of health services, veterinary public health has been one of the new services introduced.

The growing recognition of the importance of those diseases and infections transmissible from animals to man, known as the zoonoses, has increased the need for veterinarians trained in public health methods. Public health veterinarians are having increasing responsibilities in all of the countries for control of the zoonoses and supervision of the concomitant activities in food hygiene.

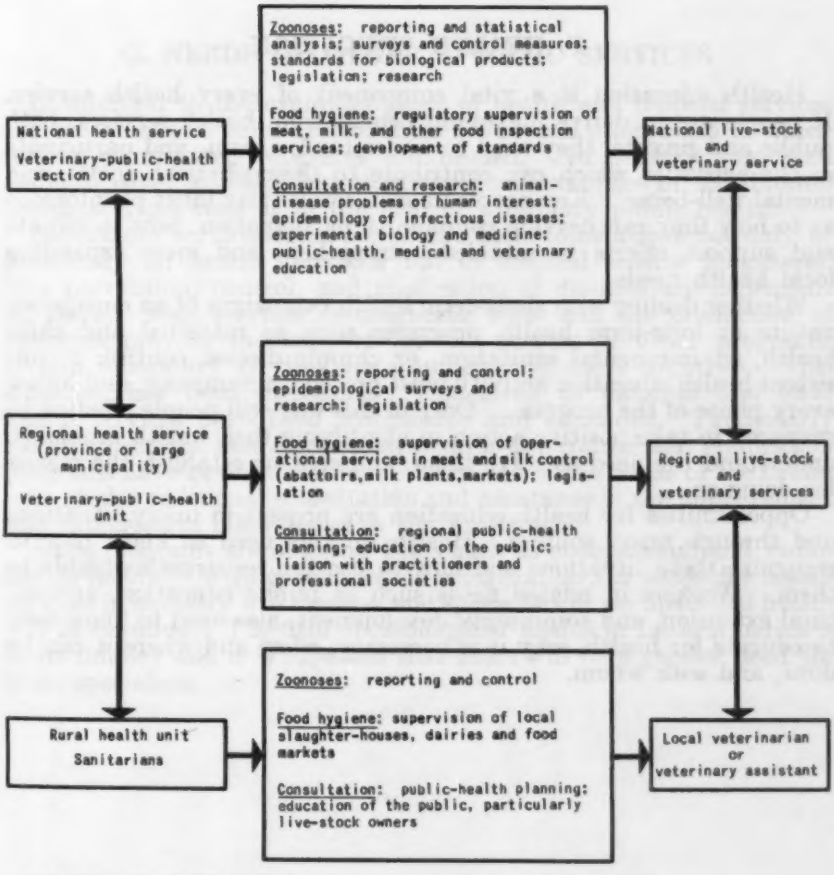
The public health problems of bovine tuberculosis, brucellosis, rabies, hydatidosis, leptospirosis each involves a different approach to break the animal to human transmission. Often, the only practical method of preventing human infection is to control or eradicate the disease in animals, a task requiring health services which include public health veterinarians on the staff and maintain close liaison between the ministries of health and of agriculture. Prevention of human disease from infection by animals requires work in food hygiene. The health supervision of food production, manufacture, and distribution to provide a safe and adequate food supply is placing increasing responsibilities on the ministries of health and their veterinary public health services.

The accompanying chart adapted from the Second Report of the Joint WHO/FAO Expert Committee on Zoonoses shows the activities in the field of veterinary public health at various levels of government and the agencies involved. The Organization gives consultant services to governments in veterinary public health. Most of the assistance to countries has been provided through direct consultation to the ministries or through projects of integrated health services or communicable disease control. There have also been special activities in projects of rabies and brucellosis.

The Pan American Zoonoses Center, established in 1956 in Azul, Argentina, has answered a wide variety of requests from governments for its services. These have included education and training, consultation, laboratory services, field demonstrations, research, and special surveys. Special attention is given to zoonoses which have the greatest socioeconomic impact.

FIGURE 48

VETERINARY PUBLIC-HEALTH ACTIVITY AT VARIOUS LEVELS OF GOVERNMENT


National health service
Veterinary-public-health section or division
Zoonoses: reporting and statistical analysis; surveys and control measures; standards for biological products; legislation; research
Food hygiene: regulatory supervision of meat, milk, and other food inspection services; development of standards
Consultation and research: animal-disease problems of human interest; epidemiology of infectious diseases; experimental biology and medicine; public-health, medical and veterinary education
National live-stock and veterinary service
Regional health service (province or large municipality)
Veterinary-public-health unit
Zoonoses: reporting and control; epidemiological surveys and research; legislation
Food hygiene: supervision of operational services in meat and milk control (abattoirs, milk plants, markets); legislation
Consultation: regional public-health planning; education of the public; liaison with practitioners and professional societies
Regional live-stock and veterinary services
Rural health unit
Sanitarians
Zoonoses: reporting and control
Food hygiene: supervision of local slaughter-houses, dairies and food markets
Consultation: public-health planning; education of the public, particularly live-stock owners
Local veterinarian or veterinary assistant

Adapted from WHO, Technical Report Series No. 169 Second Report, Joint WHO/FAO Expert Committee on Zoonoses.

F. HEALTH EDUCATION

Health education is a vital component of every health service. If people are to derive maximum benefit from health services, both public and private, they need to understand, accept, and participate in the activities which can contribute to their physical, social, and mental well-being. Key people in each community must be informed as to how they can develop community participation, how to initiate and support efforts to establish, strengthen, and meet expanding local health needs.

Whether dealing with short-term health campaigns of an emergency nature or long-term health programs such as maternal and child health, environmental sanitation, or chronic disease control, a consistent health education activity must precede, accompany, and follow every phase of the program. Only in this way will people affected be prepared to take positive action in identifying their health problems, understand the need to solve them, and seek or establish the means for doing so.

Opportunities for health education are present in many situations and through many sources. Health workers need to know how to recognize these situations and how to use the resources available to them. Workers in related fields such as public education, agricultural extension, and community development, also need to know how to educate for health, why it is necessary, when and where it can be done, and with whom.

G. NEEDS OF OTHER SPECIFIC SERVICES

In addition to the examples given of health and hospital services and maternal and child health, there are several other fields in which similar coordinated programs are needed. No attempt has been made to cover all fields but to give several examples of coordinated health services such as in the field of veterinary public health.

Laboratory services form one of the basic foundations not only of practically all health activities but of medical science in general. The prevention, control, and eradication of diseases are dependent on them. Such services as diagnostic tests and the production of biologics provide the support for the success of other programs. Health laboratory services are insufficient in most countries. This situation has been increasingly recognized as national and local health services have been reorganized and expanded. Particularly has this been the case as concentrated disease control and eradication programs have been established. Thus one of the needs of the future is to render additional consultation and assistance in the improvement and extension of laboratories in the Americas.

Some programs are in newer fields such as occupational and radiological health. With growth in industrialization the needs for health services in industry will increase and specialists in occupational health will be required. The field of radiological health in Latin America is in its infancy and it is expected that there will be a greater need for these specialists.

FIGURE 49

AREAS OF RESEARCH IN PROGRESS AT THE INSTITUTE OF NUTRITION OF CENTRAL AMERICA AND PANAMA

1. Protein Malnutrition and its Prevention
   - a. *The incidence of protein deficiency disease (sindrome pluricarencial infantil or kwashiorkor) and its effect on morbidity and mortality in early childhood*
   - b. *Effect on growth and development*
   - c. *Preventive programs*
2. Interrelation of Malnutrition and Disease
   - a. *Diarrheal disease*
   - b. *Other infectious disease*
   - c. *Anemia*
3. Mineral Deficiency including Goitre
4. Relation of Diet and Chronic Diseases including Cardiovascular Disease
5. Composition and Improvement of Foods
6. Dietary Habits, Requirements and Nutritional Status

Part VII

COORDINATED RESEARCH

A. FIELDS OF RESEARCH

The Pan American Health Organization has been a pioneer in research programs in the field of nutrition at the Institute of Nutrition of Central America and Panama (INCAP) in Guatemala, in aftosa (foot and mouth disease) in the Foot and Mouth Disease Center in Brazil, in zoonoses in the Center in Argentina and in yellow fever. It has also undertaken studies and field investigations for better understanding of certain aspects of the malaria problem and for greater knowledge of atherosclerosis, diarrheal diseases, and poliomyelitis. The future should include the extension of these research activities and expansion into other fields.

The development of eradication programs requires research and field demonstration projects to perfect methods before total eradication campaigns are undertaken. Eradication programs may be extended beyond the four now underway.

Progress has already been made in research in nutrition at INCAP. Additional research in this field is highly desirable for practical application in the countries of the Americas in which malnutrition is prevalent. The phases of nutrition on which research is progressing are shown in outline form.

Field programs are already underway in the Americas to prevent paralytic poliomyelitis. However, as pointed out by the Conference on Live Poliovirus Vaccines in June 1959, additional research should include not only laboratory investigation but also careful epidemiological studies.

The American countries with varying socioeconomic conditions, environmental and genetic backgrounds of their populations provide excellent opportunities for coordinated research. Studies on a broad epidemiological basis of infectious and noninfectious diseases are envisioned with staffs of health services, medical schools, and institutes participating. There will be needs for funds for financing all phases of research, not only for the activities within individual hospitals and institutions but also for the coordination of the study and the analysis of data.

Preliminary work has already been started as a background for studies of atherosclerosis. In 1957 a study group of pathologists considered its geographical distribution. Since marked differences between countries had been found in the prevalence of atherosclerosis on autopsy examination and since differences do exist in mortality statistics of cardiovascular diseases, they suggested that pathologic-anatomical studies of the prevalence of atherosclerosis on a wide geographical basis be undertaken. These findings would be related to dietary habits, occupation and other environmental factors. Agreement on classification of disease states and autopsy findings and on the terminology for their description must first be reached among the study participants. On the map are shown the locations of the medical schools or hospitals from which pathologists will participate in a protocol planning conference in Cali, Colombia, for the study of atherosclerosis in the Americas.

A study of the underlying causes of malignant neoplasms might well be developed on a basis comparable to that of atherosclerosis. In the fields of tuberculosis control and poliomyelitis, knowledge should be extended so that these diseases can be prevented. Research and field studies of diarrheal disease and nutritional deficiencies need to be increased to learn better methods of preventing excessive morbidity and mortality in infancy and childhood.

The quality and comparability of the basic data obtained from hospitals, clinics, death certificates, and case reports for measurement of specific diseases and conditions need careful investigation. Good basic data will facilitate the design of research programs and will provide comparable information on existing conditions in the areas under study. The significance and the results of the research can then be more soundly evaluated.

FIGURE 50

LOCATION OF MEDICAL SCHOOLS OR HOSPITALS OF PATHOLOGISTS PARTICIPATING IN PROTOCOL PLANNING CONFERENCE IN CALI, COLOMBIA FOR STUDY OF ATHEROSCLEROSIS

B. SUPPORT FOR RESEARCH

At the present time fellowship funds to finance thorough scientific training are urgently needed. Graduate education and training and supervised experience are indispensable for scientists who are to conduct independent research of high quality.

Most international fellowships are presently limited to periods of 1 or, at the most, 2 years. Funds for graduate training for extended periods should be made available to young scientists from Latin America. In addition these scientists will need financial support to carry on their research on the completion of their graduate studies. In the United States scientists obtain this support through the grant program of the National Institutes of Health, and various private foundations. Such a system of grants is needed to encourage Latin American scientists and institutions with good facilities and qualified personnel to conduct individual research studies or to participate in cooperative epidemiological studies of disease.

The World Health Assembly in 1958 recommended a study of the research program of the World Health Organization. A study was made and the Assembly in 1959 approved the plan of research proposed for 1960. The U.S. Government in 1959 made a contribution of $500,000 to the research program of WHO. Thus expansion in the field of research is planned, and coordinated programs in the Americas will be extended. A list of the areas of needed research for health programs in the Americas is shown, based in part on the WHO document on "Intensified WHO Medical Research Programme."

FIGURE 51

PROPOSED FIELDS OF RESEARCH FOR HEALTH PROGRAMS IN THE AMERICAS

A. COMMUNICABLE DISEASES

1. Virus and rickettsial diseases
2. Tuberculosis
3. Leprosy
4. Malaria
5. Insect resistance and vector control
6. Zoonoses
7. Other diseases

B. NON-COMMUNICABLE DISEASES

1. Nutritional disorders
2. Cardiovascular diseases
3. Cancer
4. Mental disorders
5. Other diseases

C. RADIATION AND HUMAN GENETICS

1. Effect of ionizing radiation on man
2. Human genetics

D. HEALTH PRACTICE

1. Demography
2. Standard classifications and nomenclature for study of disease in relation to environment
3. Methodology of health administration
4. Problems of medical care, and relationship to social security and health services
5. Rehabilitation
6. Studies of relation of social environment to health problem

Source: Based on WHO A 12/P-B/5

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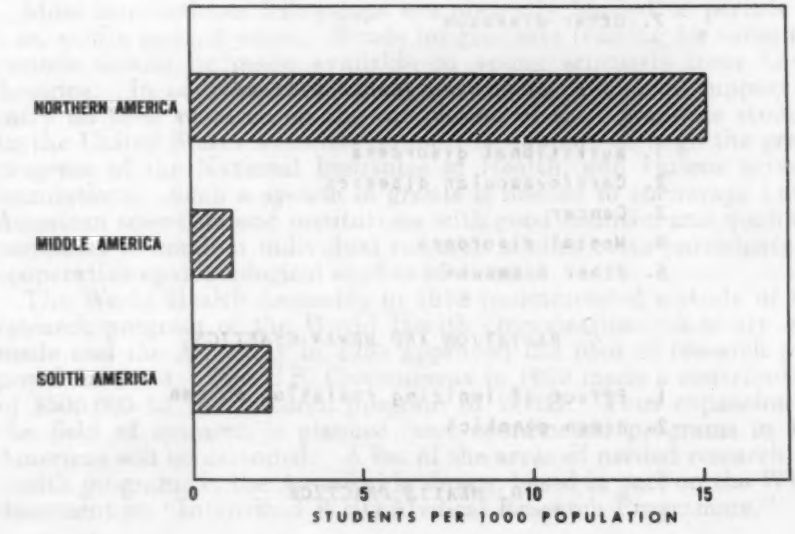
FIGURE 52

NUMBER OF STUDENTS IN INSTITUTIONS OF HIGHER EDUCATION PER 1000 POPULATION IN COUNTRIES OF THE AMERICAS, IN A RECENT YEAR



Source: United Nations, Statistical Yearbook 1958

Part VIII

HEALTH MANPOWER

Introduction

The development of health and medical services in the Americas will require increasing numbers of trained health workers. At present no country has an adequate supply of doctors, nurses, engineers, and allied technical and auxiliary personnel for rapidly expanding health and medical programs. Several professional groups and national health services have been assessing the needs and planning for facilities for education and training.

Educational opportunities and facilities vary widely in the Americas. In most countries facilities for primary and secondary education are not satisfactory, and in many only a small proportion of children complete their secondary education. In some countries in Latin America students go directly from secondary schools to medical, engineering, dental, and other schools of the universities. For a medical degree 6 or 7 years of study in the medical sciences and clinical subjects are required. For an engineering degree, the period of study is 4 or 5 years. The number of institutions of higher education and of students enrolled are relatively small in many countries. The accompanying chart showing the number of students per 1,000 population in the regions of the Americas emphasizes the great differences. Fifteen of each 1,000 persons in Northern America attend colleges or universities each year but in Middle and South America the corresponding proportions are only 1.2 and 2.3 out of each thousand. A large part of the differences in these proportions may be due to the fact that many students in Northern America go to colleges and universities for study leading to liberal arts degrees and are not preparing for specific professions. However, in many Latin American countries most students go to universities for preparation for professional careers.

To provide personnel for health services, educational opportunities must be improved and extended. Professional health workers will come mainly from the group entering institutions of higher education who prepare for careers in one of the specialties of health. More persons must complete secondary education prepared for university admission, and better opportunities must be available for university training as well as for undergraduate and postgraduate courses for training in specialized fields.

The needs for doctors, nurses, engineers, dentists, and veterinarians, the largest groups of health personnel, will be considered separately. In addition, other groups, smaller in numbers, will need preparation in institutions of higher education.

Many auxiliary health workers with less formal education will also be needed to render assistance, especially in the fields of nursing and sanitation. Provision for their training and supervision is part of the necessary planning for health manpower.

A. PHYSICIANS

Health programs throughout the Americas require physicians trained to provide services both in preventive and curative medicine. Many factors determine the needs for physicians, and health programs are dependent on available resources in manpower and facilities. The number of physicians per 10,000 population is given by countries in the accompanying chart.

In only 5 countries were there as many as 10 physicians per 10,000 population. Northern America had 12.9 physicians per 10,000 population while Middle America had 5.0 and South America 5.3 per 10,000 population in 1957. Within countries physicians tend to concentrate where population density is high. For example, in areas surrounding Santiago, the capital city of Chile, and Valparaiso, its principal port, there are almost 11 doctors per 10,000 inhabitants, but in the southern part of the country the rate does not even reach 2.5.[2]

Also shown on a map of the Americas are the locations of the 184 medical schools. Northern America had slightly more than half of the medical schools (96). There are at present 88 schools of medicine in Latin America, although each year one or two new schools are added. The size of the student body in these schools is so variable, however, that the number cannot be examined by itself other than noting the fact that there is at least one medical school in every country in the Americas.

The expansion of health services requires in nearly all countries more facilities for training of physicians. The numbers of physicians needed in 1980 have been estimated for the 3 regions on the basis of 13.0 per 10,000 population. The table below gives estimates of these numbers of physicians for 1980 and also the number of medical schools which exist today to train physicians.

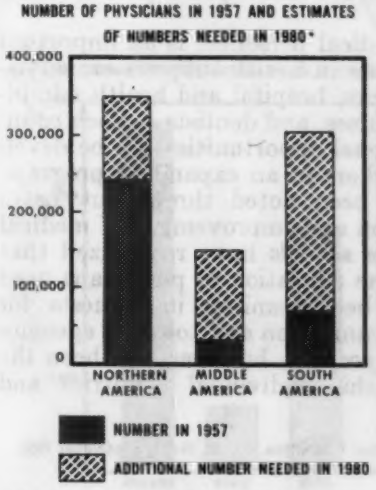
Number of physicians and medical schools in 1957 and estimated needs in 1980

Region	Physicians			Medical schools 1957	
	1957		Estimated need 1980	Number of schools	Number of graduates in 1957
	Number	Per 10,000			
Northern America	242,400	12.9	351,000	96	7,662
Middle America	30,455	5.0	149,500	30	1,414
South America	69,914	5.3	304,200	58	5,308

[2] Viel, B.V., Journal of Medical Education, vol. 34, No. 8, August 1959.

FIGURE 53

NUMBER OF PHYSICIANS PER 10,000 POPULATION IN THE AMERICAS, BY COUNTRY IN 1957



* Estimates based on ratio of 13.0 physicians to 10,000 population

Source: PAHO Scientific Publication No. 40

All three regions will need to graduate more physicians from medical schools each year either by establishing new schools or expanding the training facilities of the existing schools. For example, in 1957 in the United States, medical schools graduated 6,796 physicians. Present plans underway for expansion will result in 7,410 graduates in 1965. By 1975 there is an estimated need for 9,460 graduates to maintain the same ratio of physician to population as in 1955. Twenty new medical schools would have to be added to the 87 scheduled for existence by 1965. The average graduates per school [3] each year would be 90.

Since the rate of growth of the population is much greater in Middle and South America and the present ratio of physicians per 10,000 population is low, the need for new schools and expansion of existing schools will be even greater. At the present time most schools in Middle America have low enrollment and some of the expansion can be brought about in these schools. Each country will need to evaluate its teaching facilities and to make plans for expansion or for new schools to provide physicians for its rapidly growing population in addition to overcoming the present shortage. One important problem is the number of countries with limited resources but with a desire and a tradition to maintain a medical school. Such a school can serve the purpose of raising standards of medical practice and carrying out postgraduate education, but it is not an economical operation.

The need for schools of public health is related to the development of health facilities in a country. Countries in which local health services also supply medical care to a large proportion of the population may need to train relatively more personnel in health services. The needs in Northern America have been met by 12 schools. Several of these schools have trained in addition health workers, primarily health officers, for many countries of the world. At present there are two schools of public health in Middle America and two in South America which accept students from other countries. There are several others which vary in quality and are used especially for training of national health workers.

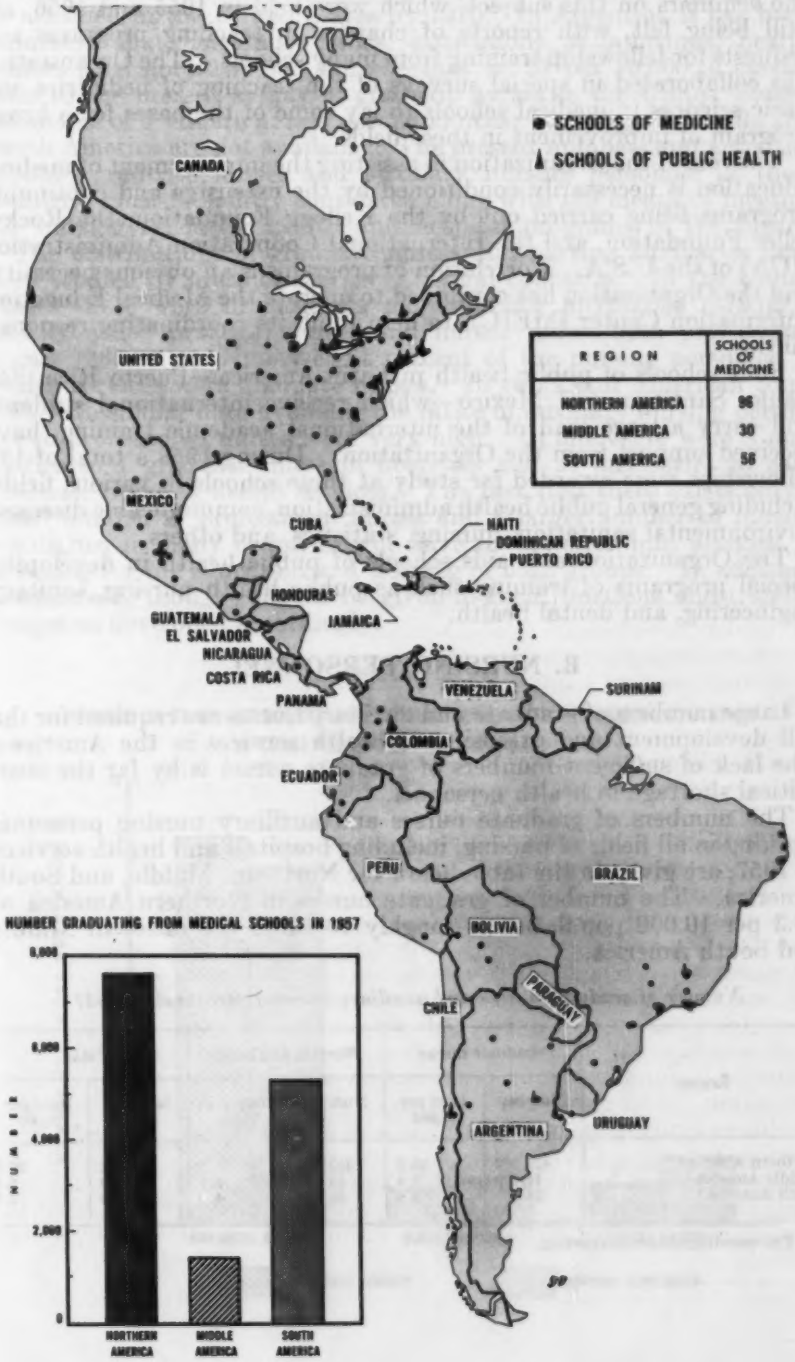
The provision of courses for nonmedical personnel is an important responsibility of these schools. Courses in health subjects are advisable for preparation of health educators, hospital and health administrators, statisticians, nutritionists, nurses, and dentists. Each country will have to consider how educational opportunities can be developed for training of these health workers in an expanding program.

A steadily widening interest has been noted throughout Latin America in fundamental reorganization and improvement of medical education. More countries and more schools have recognized that traditional methods and content in the education of physicians need drastic revision. This interest has been manifest in requests for assistance which have come to the Organization and to other agencies working in this field. Even more important, however, has been the evidence of critical self-analysis within individual countries and schools.

[3] Perrott, G. St. J. and Pennell, M. Y., Journal of Medical Education, vol. 33, No. 9, September 1958.

FIGURE 54

SCHOOLS OF MEDICINE AND OF PUBLIC HEALTH IN THE AMERICAS, 1959



REGION	SCHOOLS OF MEDICINE
NORTHERN AMERICA	96
MIDDLE AMERICA	30
SOUTH AMERICA	58

Improvement in the teaching of preventive medicine in medical schools continues as a high priority for the Organization. Effects of the seminars on this subject, which were held in 1955 and 1956, are still being felt, with reports of changes in teaching programs and requests for fellowship training from many schools. The Organization has collaborated in special surveys of the teaching of pediatrics and basic sciences in medical schools to lay some of the bases for a broad program of improvement in these fields.

The role of the Organization in assisting the improvement of medical education is necessarily conditioned by the extensive and continuing programs being carried out by the Kellogg Foundation, the Rockefeller Foundation, and the International Cooperation Administration (ICA) of the U.S.A. Correlation of programs is an obvious necessity, and the Organization has continued to operate the Medical Education Information Center (MEIC), to help fulfill its coordinating responsibilities.

Four schools of public health in Latin America—Puerto Rico, São Paulo, Santiago, and Mexico—which receive international students and carry a large load of the international academic training, have received support from the Organization. During 1958 a total of 131 fellowships were awarded for study at these schools in various fields, including general public health administration, communicable diseases, environmental sanitation, nursing, statistics, and others.

The Organization also aids schools of public health in developing special programs of training such as public health nursing, sanitary engineering, and dental health.

B. NURSING PERSONNEL

Large numbers of graduate and auxiliary nurses are required for the full development and extension of health services in the Americas. The lack of sufficient numbers of graduate nurses is by far the most critical shortage in health personnel.

The numbers of graduate nurses and auxiliary nursing personnel working in all fields of nursing, including hospitals and health services in 1957, are given in the table below for Northern, Middle, and South America. The number of graduate nurses in Northern America of 26.3 per 10,000 population is roughly 10 times the ratios in Middle and South America.

Number of graduate nurses and auxiliary nursing personnel in 1957

Region	Graduate nurses		Nursing auxiliaries		Total	
	Number	Rate per 10,000	Number	Rate per 10,000	Number	Rate per 10,000
Northern America	475,862	26.3	442,740	24.4	918,602	50.7
Middle America [1]	14,500	2.4	18,700	3.1	33,200	5.4
South America [1]	34,600	2.6	59,200	4.5	93,800	7.2

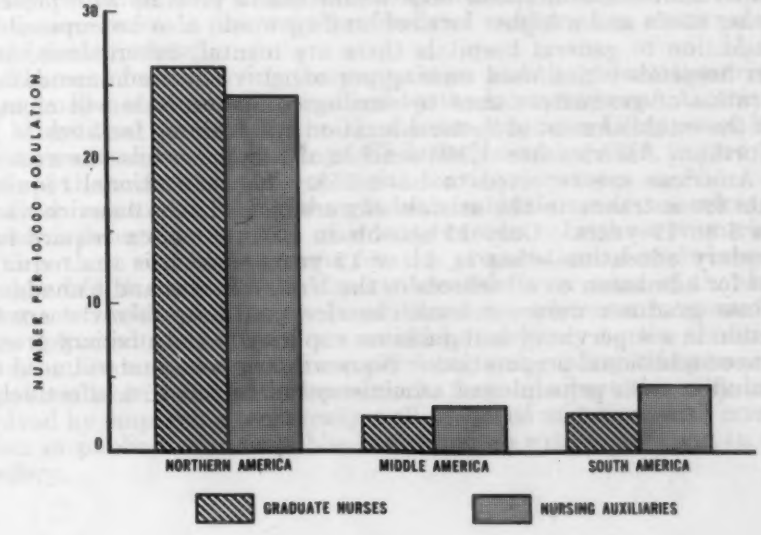
[1] Estimated; incomplete reporting.

According to the National League for Nursing, the nursing profession has set 35.0 nurses per 10,000 population as a reasonable goal to be achieved in the United States by 1970. In Argentina it has been estimated that hospitals, clinics, institutions, sanatoriums, health centers need about 45,000 nurses—that is, 23 per 10,000, a similar ratio to the present supply of graduate nurses in the United States. Estimates of graduate nurses needed in other countries of Middle and South America are not available. The present numbers and activities of both graduate nurses and auxiliary nursing personnel in these countries must be jointly considered along with the means of meeting the nursing needs for health and hospital programs in the future.

The distributions of graduate nurses and nursing auxiliaries have been studied by areas of service in several countries. In the United States there were in hospitals more nursing auxiliaries (375,000), usually called practical nurses and nurses' aides, than professional nurses (265,800). Ninety-eight percent of the nursing personnel in health services were graduate nurses. In two Latin American countries with similar data available the ratios of auxiliary nursing personnel to professional nurses were very high. In one there were 9 auxiliaries to 1 graduate nurse in hospitals and 24 auxiliaries to each graduate nurse in health services. The fact that there exists only a small number of professional nurses and a larger number of nursing auxiliaries in many countries will have to be taken into account in planning for the education and training of both groups. In addition, considerable thought should be given to their functions and training programs developed accordingly.

FIGURE 55

NUMBER OF GRADUATE NURSES AND NURSING AUXILIARIES PER 10,000 POPULATION IN THREE REGIONS OF THE AMERICAS, 1957



The needs for nurses in health services are not as great in Northern America as in Middle and South America. In the latter two regions, medical care is routinely included in the activities of the health services whereas in Northern America such care is principally given by private physicians. In addition, there is a tendency to give nursing personnel in health services additional responsibility because, particularly in rural areas, the supply of physicians is very limited. For health services in Middle and South America the following ratios of nurses to population are suggested:

	Per 10,000
1 public health nurse for 50,000 population	0. 2
1 additional graduate nurse for 10,000 population	1. 0
5 nursing auxiliaries for 10,000 population	5. 0

On this basis the nursing personnel required for health services would be 6.2 per 10,000 population. Public health nursing alone would require almost as many nurses and auxiliaries as there are in Middle and South America at the present time. The suggested ratio of auxiliaries to graduate nurses may change since it will depend on the availability of graduate nurses.

The need for hospital nurses, both professional and auxiliary, would be much greater if there were enough hospital beds available. The following formula, based on the number of hospital beds, may be used to estimate minimum needs in the Middle and South American countries with recognition that the corresponding numbers in hospitals in Northern America are already much higher.

(1) Thirty-three nurses or nursing auxiliaries for each 100 beds during a 24-hour period.

(2) One graduate nurse for every four auxiliaries, or 6 graduate nurses and 27 auxiliaries for the 100-bed hospital.

On this basis all the nursing personnel available in Middle and South America could be used to staff the existing general hospitals. Needed increases in hospital beds would not be possible with present nursing staffs and a higher level of staffing would also be impossible. In addition to general hospitals there are mental, tuberculosis, and other hospitals which need nursing personnel. The recommendation for ratios of graduate nurses to auxiliaries in hospitals will change with the establishment of better education and training facilities.

Northern America has 1,360 schools of nursing while the rest of the Americas are reported to have 258. The educational requirements for entrance to the schools of nursing in Latin America vary from 6 to 12 years. Only 15 schools in Latin America require full secondary education—that is, 11 or 12 years—which is the requirement for admission to all schools in the United States and Canada.

Those graduate nurses in health services and hospitals who are to function in a supervisory and guidance capacity to the auxiliary group will need additional preparation. Nurses in key positions will need to be familiar with principles of administration to function effectively.

The Organization is giving direct assistance to schools of nursing in eight countries in projects of postgraduate nursing education. Assistance is given in training of auxiliary nursing personnel, and in surveys in the countries to determine realistic goals. Within the projects for integrated health services, training activities are an essential part of the program.

Each ministry of health needs, and several have already created, a section or division of nursing to do the planning with other health department staff for the extension and expansion of nursing services. Determination of nursing resources and needs, development of public health and hospital services, accreditation of schools of nursing, are some of the responsibilities assigned to such a division.

The provision of adequate salaries and career service for the graduate nurses is a recognized problem in some of the countries. An important phase of the planning for nursing personnel is the establishment of suitable positions which will attract students and give them after graduation suitable opportunities for employment in health services and hospitals.

An aggressive attack to overcome the critical shortage of nursing personnel should have the highest priority in planning for the extension of health services in the Americas.

C. MIDWIFERY

Graduate midwives constitute another group which also gives care in the maternal and child health field. A number of countries in Middle and South America have established schools for their training. The requirements for admission to these schools in some countries, such as Chile, are the same as those for admission to medical schools. In general, the graduate midwife is technically competent but has had very little, if any, orientation to general public health. Nevertheless, many countries have employed the graduate midwife in health services, sometimes as the only professional worker in a maternal and child health center.

The need for improving the preparation and the potential service of this group has also been recognized by the Inter-American Association of Midwives. As a result the First Inter-American Congress of Midwives was convened in Santiago, Chile, in November 1959, to study the role of the midwife in present health service structures.

Each country in which the graduate midwife renders services will need to determine how she may best function. In those countries in which there are no programs for the preparation of midwives, the public health nurse will be expected to take over some of the duties connected with midwifery. In all countries, wherever most mothers are delivered at home and are assisted at delivery by the traditional birth attendant, the need for supervising and guiding this person is a problem which all health departments face. In part this may be resolved by employing technically well-prepared midwives with orientation in public health or public health nurses with orientation in midwifery.

D. PERSONNEL FOR ENVIRONMENTAL SANITATION

Engineers trained in survey, design, construction, operation, and management of water systems and sewage disposal works will be needed in increasing number as countries more aggressively attack their problems in these fields. At the same time more engineers will be required for employment by health services to insure proper supervision of the existing facilities, and to review plans for new works.

In 1957 engineering personnel associated with health agencies in the Latin American countries are estimated to number between 250 and 300. Those involved in design, construction, maintenance, and management of sanitary works number about 1,700, yielding a total of about 2,000 sanitary engineers. In most of these countries water and sewage disposal facilities have not been provided to large proportions of the population. A reasonable figure of the immediate requirement for sanitary engineering personnel in Latin America is estimated by a ratio of 0.33 per 10,000 population to be 6,300 sanitary engineers. On this basis approximately 12,000 sanitary engineers will be needed in 1980 if the entire population is to be provided with satisfactory sanitary engineering services.

Number of sanitary engineers and sanitarians in 1957 and estimated requirements [1] for 1980

Region	Sanitary engineers			Sanitarians		
	1957		1980 estimated need	1957		1980 estimated need
	Number	Estimated need		Number	Estimated need	
Northern America	5,000	6,200	8,900	4,959	6,200	8,900
Middle America	2,000	2,000	3,800	3,019	4,100	7,700
South America		4,300	7,800	4,319	8,800	15,700

[1] Estimated engineers needed, 0.33 per 10,000. Estimated sanitarians, 0.33 per 10,000 for Northern and 0.67 per 10,000 for Middle and South America.

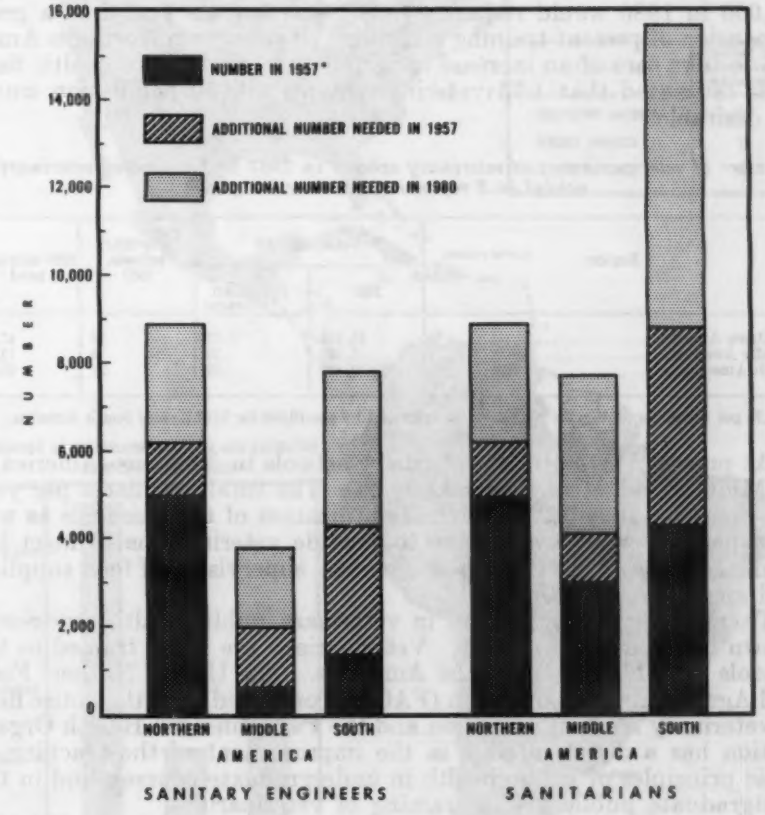
At the present time there are eight schools in the Latin American countries providing training for sanitary engineers. On the basis of their present resources the yearly potential of these schools could be about 240 graduates per year, although the present graduates number about 100 each year. To reach the indicated personnel level by 1980, it may be necessary to quadruple the number of sanitary engineers trained each year.

Sanitarians are essential members of the team for local health services. Their number is far below present needs, and the future requirements indicate an urgent need for increased training facilities. A conservative estimate, a ratio of 1 sanitarian to 15,000 population shows a total requirement at present of 12,900 in Middle and South America. Present estimates of the number now employed in local, State, and National health organizations are about 7,300. On the basis of population estimates for Middle and South America 23,400 would be required in 1980.

To the requirements for sanitary engineers and sanitarians must be added the needs for such diverse categories of personnel as plumbers, electricians, mechanics, structural workers, well drillers, and pipefitters. Although many of these can be trained on the job, personnel at the foreman level with the ability to train others would have to be increased.

FIGURE 56

NUMBER OF SANITARY ENGINEERS AND SANITARIANS IN 1957 AND ESTIMATED NUMBERS NEEDED IN 1980



*Estimated for Middle and South America

E. VETERINARIANS

From the standpoint of human medicine and public health, veterinary medicine involves the problems of diseases transmitted between animal and man (zoonoses) and of food and drug control and plays an important role in medical research. Otherwise, veterinary medicine is more related to the practice of medicine in animals.

From available information, in 1957 there were 22,343 veterinarians in the Americas of which 18,329 (82 percent) were in Northern America. In Northern America with the present shortage there is only 1 veterinarian per 10,000 population. To bring the number of veterinarians in Middle and South America to the level of 1.0 per 10,000 in 1980 would require 34,900 veterinarians and thus a great expansion of present training facilities. However, in Northern America to take care of an increase in activities in the public health field, it is estimated that 1.75 veterinarians per 10,000 population would be desirable.

Number of veterinarians and veterinary schools in 1957 and estimated veterinarians needed in 3 regions of the Americas, 1980

Region	Veterinarians		Veterinary schools, 1957	1980 estimated need [1]
	1957	Per 10,000		
Northern America	18,329	0.97	19	47,250
Middle America	1,525	.25	5	11,500
South America	2,489	.19	21	23,400

[1] 1.75 per 10,000 population for Northern America and 1.0 per 10,000 for Middle and South America.

At present there are 19 veterinary schools in Northern America, 5 in Middle, and 21 in South America. The total graduates per year are approximately 1,250. Greater utilization of these schools as well as expansion will be necessary to provide veterinarians to meet the challenging problems of zoonoses control, supervision of food supplies, and medical research.

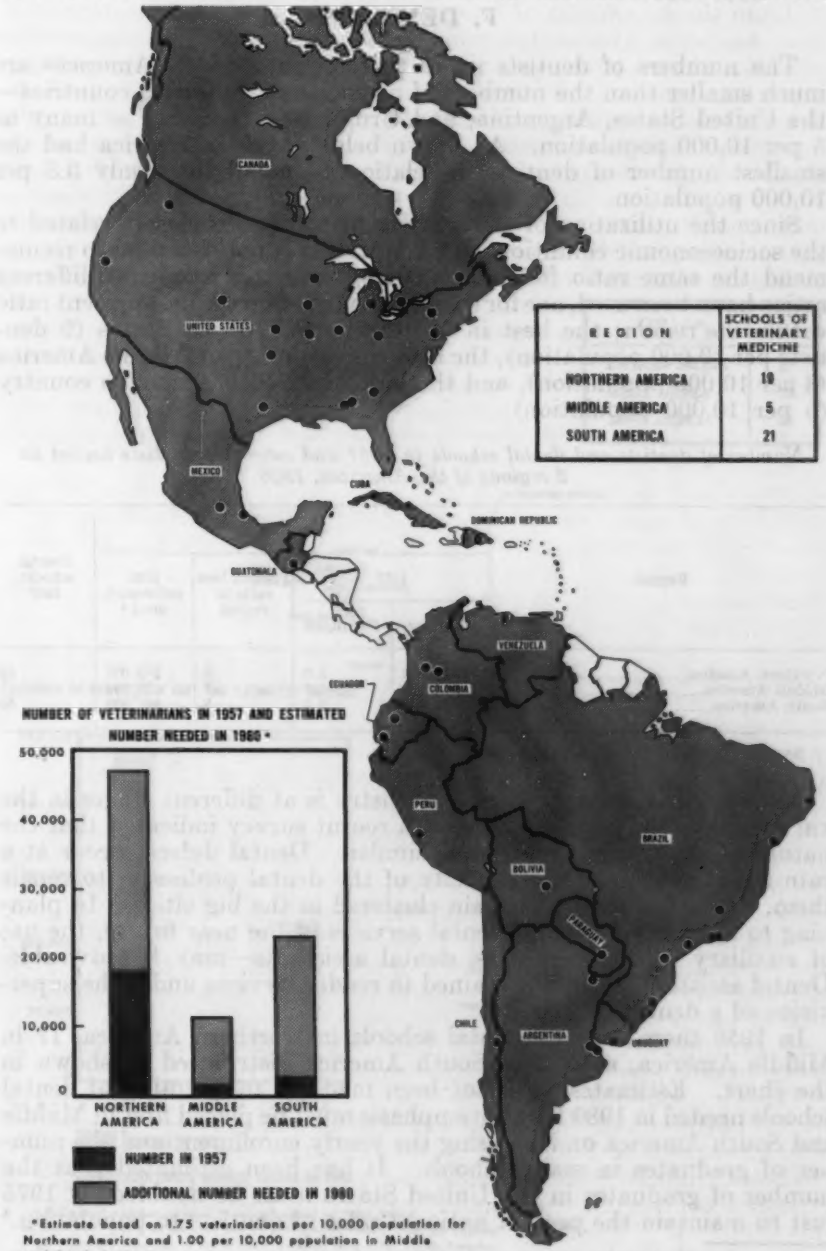
There is a growing interest in veterinary public health services as shown by their development. Veterinarians are being trained in the schools of public health in the Americas. The United Nations Food and Agricultural Organization (FAO) is concerned with the entire field of veterinary medical education and the Pan American Health Organization has a direct interest in the improvement of the teaching of basic principles of public health in undergraduate courses, and in the postgraduate public health training of veterinarians.

The Pan American Zoonoses Center in Azul, Argentina, provides special postgraduate courses in zoonoses as well as refresher work for individuals sent to the center. The Pan American Foot and Mouth Disease Center in Brazil provides short courses for veterinarians and extended courses for veterinarians receiving specialized training in this field.

In view of the zoonoses problems and their socioeconomic repercussions and the importance of adequate and proper food supplies for ever-increasing populations, planning for immediate developments in veterinary education and training is needed.

FIGURE 57

LOCATION OF SCHOOLS OF VETERINARY MEDICINE IN THE AMERICAS, 1958



REGION	SCHOOLS OF VETERINARY MEDICINE
NORTHERN AMERICA	10
MIDDLE AMERICA	5
SOUTH AMERICA	21

NUMBER OF VETERINARIANS IN 1957 AND ESTIMATED NUMBER NEEDED IN 1980 *

*Estimate based on 1.75 veterinarians per 10,000 population for Northern America and 1.00 per 10,000 population in Middle and South America

F. DENTISTS

The numbers of dentists in all three regions of the Americas are much smaller than the numbers of physicians. In only 3 countries—the United States, Argentina, and Uruguay—were there as many as 5 per 10,000 population. As shown below, Middle America had the smallest number of dentists in relation to population, only 0.8 per 10,000 population.

Since the utilization of the services of dentists is closely related to the socioeconomic conditions of a country, it is not practical to recommend the same ratio for all countries. For this reason, 3 different ratios have been used, one for each region based on the best present ratio within the region; the best in a State in the United States (9 dentists per 10,000 population), the best in a country of Middle America (3 per 10,000 population), and the best in a South American country (5 per 10,000 population).

Number of dentists and dental schools in 1957 and estimated dentists needed in 3 regions of the Americas, 1980

Region	Dentists				Dental schools, 1957
	1957		Present best ratio in region	1980 estimated need [1]	
	Number	Per 10,000			
Northern America	94,500	5.0	9	243,000	52
Middle America	5,100	.8	3	34,500	17
South America	33,000	2.5	5	117,000	52

[1] Based on present best ratio in each region.

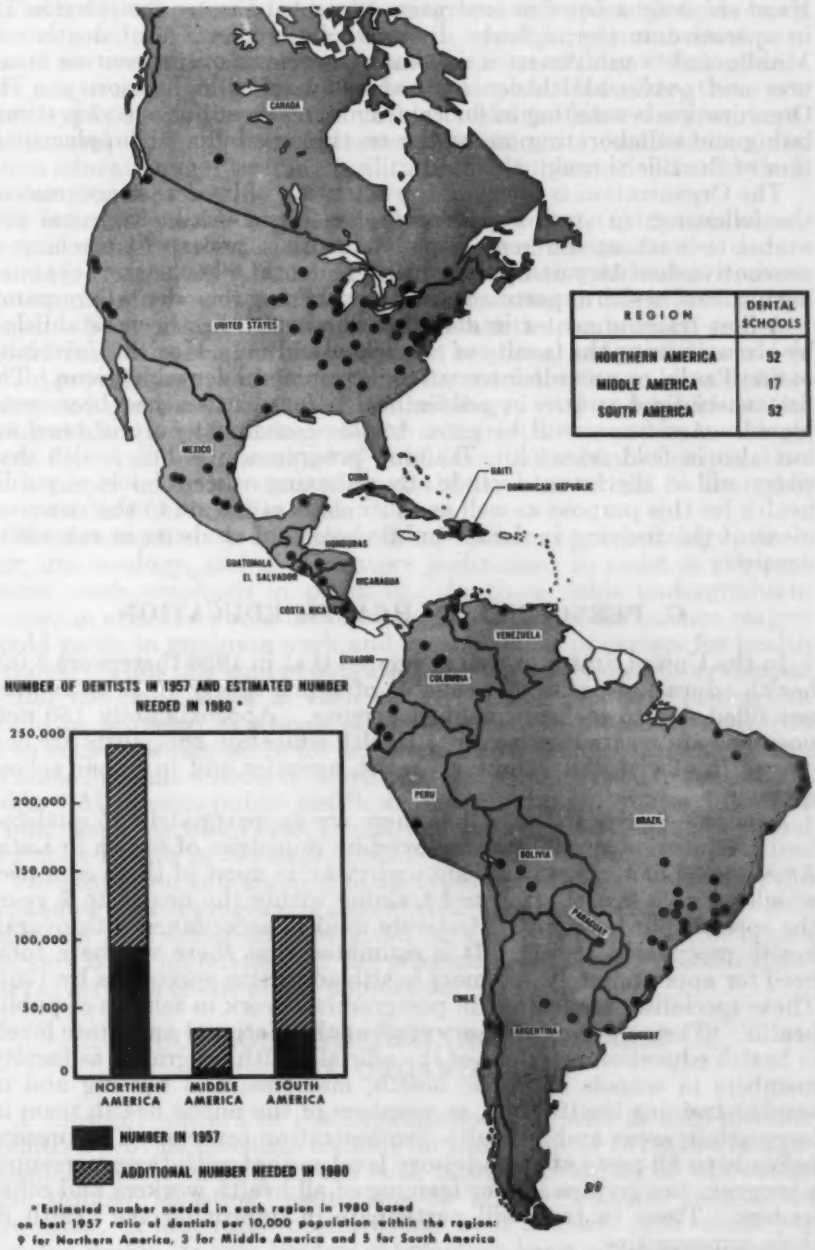
Although the development of dentistry is at different stages in the various countries of the Americas, a recent survey indicated that the nature of the dental problems is similar. Dental defects occur at a rate that far exceeds the capacity of the dental profession to repair them. Dentists tend to remain clustered in the big cities. In planning to meet the needs for dental services in the near future, the use of auxiliary workers—that is, dental assistants—may be advisable. Dental assistants would be trained to render services under the supervision of a dentist.

In 1956 there were 52 dental schools in Northern America, 17 in Middle America, and 52 in South America distributed as shown in the chart. Estimates have not been made of the number of dental schools needed in 1980 because emphasis must be placed first in Middle and South America on increasing the yearly enrollment and the number of graduates in many schools. It has been estimated that the number of graduates in the United States must be doubled by 1975 just to maintain the present national ratio of dentists to population.[4]

[4] U.S. Department of Health, Education, and Welfare, "Health Manpower Source Book," sec. 9, 1959.

FIGURE 58

LOCATION OF SCHOOLS OF DENTISTRY IN THE AMERICAS, 1956



Water fluoridation is the best preventive measure now available. It can reduce by about 60 percent the incidence of dental caries. However, only a few demonstration projects of water fluoridation are in operation in the regions. In view of the shortage of dentists in Middle and South America, increased emphasis on preventive measures and public health dentistry should have a high priority. The Organization is assisting in fluoridation of water supplies and is stimulating and collaborating on studies on the possibility of supplementation of fluoride through table salt.

The Organization is focusing the attention of its dental program on the following: (*a*) training of professional and auxiliary dental personnel to work at different levels of health services, (*b*) teaching of preventive dentistry and public health in dental schools, and (*c*) assisting national health departments in strengthening their dental programs.

A first training center in dental public health has been established by strengthening the faculty of the School of Public Health, University of São Paulo, to provide international training in dental hygiene. The first specialized course in public health for dentists has been completed. Assistance will be given to this center not only in teaching but also in field research. Training programs in public health dentistry will in the future include strengthening other schools of public health for this purpose as well as continuous attention to the improvement of the training in dental public health of students in schools of dentistry.

G. PERSONNEL IN HEALTH EDUCATION

In the United States, it was estimated that in 1956 there were 3,000 health education positions available of which nearly 10 percent were not filled due to lack of qualified persons. Approximately 150 new positions are created each year. Health education specialists are employed in official and voluntary health agencies and in public school systems.

Available figures indicate that there are approximately 75 qualified health education specialists employed by ministries of health in Latin America. Long-range plans are underway in most of these countries which provide for selecting and training within the next 5 to 7 years the specialists who can be effectively used in accordance with overall health program planning. It is estimated that there will be a total need for approximately 300 more health education specialists by 1965. These specialists are trained in postgraduate work in schools of public health. They serve as advisory staff at the National and State levels in health education activities of the official health programs, as faculty members in schools of public health, medicine, and nursing and in teacher-training institutions, as members of the public health team in large urban areas and in health demonstration centers. The present policy is to fill posts at the advisory level so that with these personnel a program can go forward for training of all health workers and other leaders. These in turn will participate in improving the health of their communities.

The numbers of specialists required for the future in this field in the Americas will necessarily be geared to the amount and kind of general health services planned for each country.

H. OTHER HEALTH PERSONNEL

The manpower needs for health programs in important fields have been covered. These are basic fields in which large numbers of personnel are needed in the countries, and for most of these training facilities are usually available or can be developed. However, there are other types of health personnel such as technical laboratory workers, health and hospital administrators, nutritionists, statisticians for whom education and training facilities must be planned either in their own countries or outside.

In order to provide for qualified workers in these fields it is necessary to stimulate development of paramedical courses in the undergraduate curriculum in universities for preparation of health workers who would afterwards receive graduate training in schools of public health. For example, in the field of statistics, university students should receive courses in mathematics, sciences, and statistics which would provide them with background for specialization in biostatistics. Advanced courses in statistical methodology, vital and health statistics and also in epidemiology, health administration and bacteriology could be developed in a school of public health for further preparation for a career in health statistics. A similar plan would be desirable for specialization in other fields.

The development of specialists in microbiology, parasitology, virology, immunology, and of laboratory technicians to assist in the programs needs emphasis in planning. In these fields undergraduate courses in sciences would be necessary and some of the science majors would go on to graduate work and specialization in careers for health services. Thus this kind of education and training would be developed within the universities in each country. The graduate instruction would be provided in schools of public health in the larger countries or in schools which serve for international training. Provisions can be made for some schools to develop intensive instruction in specialized fields. At present public health dentistry is taught at the School of Public Health in São Paulo, Brazil, and health statistics at the School of Public Health in Santiago, Chile.

The education and training of all types of personnel to serve in the expanding health program is a great challenge to health leaders. Full attention to training must be given for a well-trained staff of health workers is the foundation for the program and makes possible expansion of services to the entire population.

I. EDUCATION AND TRAINING PROGRAM OF THE ORGANIZATION

A constant concern of the Organization has been to help member countries provide adequate training for their staffs or to make available possibilities for training abroad both through awarding of fellowships and through assisting institutions to accept students from other countries. A long-range objective has been to assist each country to develop within its own borders satisfactory basic educational institutions for the physicians, nurses, engineers, and other types of health personnel. For certain categories it has been necessary to plan on international training centers where resources may be concentrated

and training of high quality provided. The aim of providing trained national staff is kept paramount in all of the Organization's programs; even those which are not specifically educational in scope set goals for training of personnel on an individual or group basis, establishing the facilities and methods for this training when necessary.

The Organization's program in education and training has taken several forms. In some countries work has been concentrated on national institutions with provision of consultants and fellowships. In other instances, conferences or seminars have been held involving educators from several countries for exchange of experiences and establishment of reasonable, generally acceptable standards.

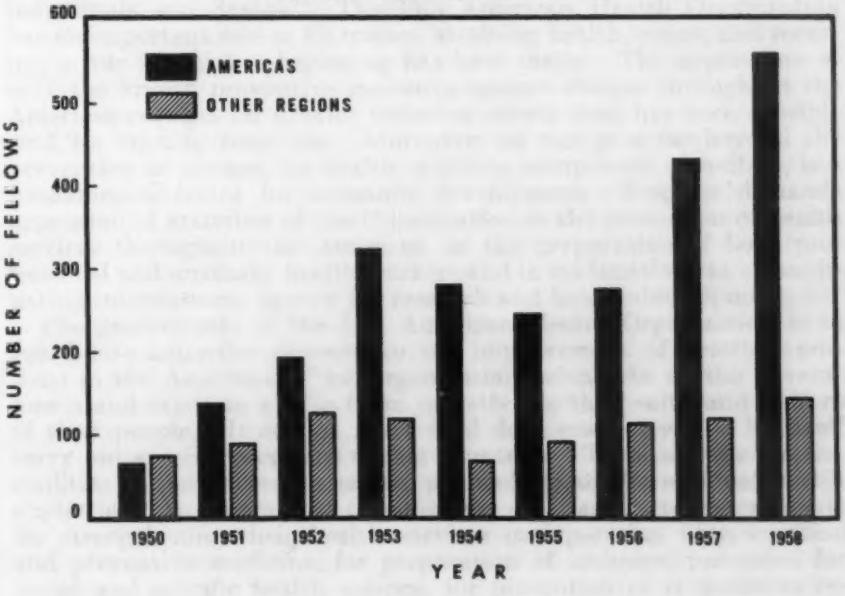
Advance has been noted in medical education and the increased emphasis on prevention. The effects of the seminars on the teaching of preventive medicine sponsored by the Organization are manifest through reports of changes made in teaching programs in medical schools. Recent meetings sponsored by the Organization include the following: (1) Conference of Directors of Schools of Public Health in November 1959, (2) Seminar on Teaching of Public Health in Schools of Veterinary Medicine in August 1959, (3) Conference on Teaching of Medical Statistics in July 1958, (4) Seminar on Pediatric Education in November 1958, (5) Working Group on Medical Certification in May 1959, (6) Regional Nursing Congress in October 1959.

The fellowship program is an essential part of the work of the Organization inasmuch as it helps to provide a corps of professionally trained workers who constitute the backbone of the hemispherewide attempt to improve public health. There is a constant increase in the number of fellowships awarded. The fellowship awards include those of the Pan American Health Organization, of the World Health Organization, and of the Technical Assistance Program of the United Nations. Fellowships are awarded for academic study in schools of public health, for courses sponsored by WHO/PAHO, for seminars and for travel. The accompanying chart shows the increase in fellowships awarded in the period 1950–58. In 1958, of the fellows receiving awards in the Americas 203 received special training in malaria. The total funds for the awards in 1958 were over $900,000 ($909,840) which shows the cost of the present program in this field. It is expected that there will be increasing requests for fellowships.

At the present time the Organization is considering how its education and training program can be expanded to give much more assistance to countries in an enlarged program of preparing health specialists for the Americas. The development of facilities for training to meet the needs in preparing doctors, nurses, engineers, dentists, and other health workers will require the coordinated efforts and resources of many agencies.

FIGURE 59

FELLOWS RECEIVING AWARDS IN THE AMERICAS AND FELLOWS ARRIVING FROM OTHER REGIONS, 1950 - 1958



Part IX

PRESENT AND FUTURE ROLE OF THE PAN AMERICAN HEALTH ORGANIZATION

Introduction

As envisioned by the health leaders in the Americas in 1902 and those who established the Pan American Sanitary Code in 1924 as well as expressed in the Constitution of the World Health Organization, "the health of all peoples is fundamental to the attainment of peace and security and is dependent upon the fullest cooperation of individuals and States." The Pan American Health Organization has an important role to fill toward attaining health, peace, and security, a role in which a beginning has been made. The application of only the known preventive measures against disease throughout the Americas requires far greater technical efforts than has been possible with its existing resources. Moreover, its role goes far beyond the prevention of disease, for health, a strong component of welfare, is a fundamental factor for economic development. Progress demands expansion of activities of the Organization in the promotion of health services throughout the Americas, in the preparation of both professional and auxiliary health workers and in its functions as a coordinating international agency for research and health development.

The general role of the Pan American Health Organization is to coordinate activities directed to the improvement of health conditions in the Americas. The Organization belongs to all the governments and exists to advise them in bettering the health and welfare of their people. It cannot make final decisions nor can it by itself carry out specific programs within countries. These are the responsibilities of the governments and particularly of the national health ministries. In general, the Organization gives advice to governments for strengthening their health services incorporating both curative and preventive medicine, for preparation of technical personnel for broad and specific health actions, for promotion of cooperative research, and for the strengthening of managerial aspects of health services.

Programs requiring immediate action are carried out on an emergency basis; others develop and expand continuously, mainly those dealing with increasing the positive elements of health of families and communities, the integral parts of normal societies. Emphasis on aspects of the latter may change over the years but their overall purposes and goals will remain. Progress on continuing projects is largely dependent on the building up of well-prepared staffs of professional workers in the countries with provision for increased and improved facilities and for better terms of employment including career service.

As a coordinating agency the Organization is able to perform those services which in general benefit all member governments and are more easily administered from a central office. These include the promotion and coordination of educational activities, the collection and distribution of epidemiological information, development of classifications and standards, the compilation and analysis of statistical data, the distribution of technical information.

The role of the Organization, as anticipated at present, is presented in summary form. Its specific activities will depend on many factors including the relative importance of a problem in a country, the requests of member states for assistance, and the financial and technical possibilities of carrying through any proposed expansion or development of new actions.

A. PLANNING AND STRENGTHENING OF GENERAL HEALTH ACTIVITIES

One of the major responsibilities of the Pan American Health Organization consists of rendering assistance to countries in strengthening their national and local health services. National health plans are advocated as the first requisite. Such planning takes into consideration the nature and magnitude of the problems, their relative importance, and the quality and quantity of resources in the country. Objectives are defined in relation to the evaluation of the present situation and the potential developments in the future. One goal of the Organization is to assist the countries in order to have the entire region of the Americas covered by local health services, putting into practice the concepts contained in the national health plans.

In strengthening health services with the integration of preventive and curative medicine special attention is given to maternal and child health, to communicable diseases, environmental sanitation, and health education. In the future, developments in other fields—mental health, chronic diseases, occupational and radiological health—will receive increasing emphasis.

The activities of the Organization in eradication and control of communicable diseases have been described in this report. The completion of the four eradication programs now in operation has been given high priority. Measures available for prevention and control of other communicable diseases such as tuberculosis and leprosy will also lead to expansion of these programs. Communicable diseases must not be permitted to continue to cause needless loss of energy and life.

Problems relating to maternal and child health are of great concern. Since death rates in infancy and early childhood have remained high in both Middle and South America, maternal and child health activities will continue to be emphasized. The Organization promotes the development of services in this field at both national and local levels, which are supported by other basic health services such as environmental sanitation and control of communicable diseases. Emphasis must now be placed on applying practical measures, which are readily available and easily used, to combat effectively two of the major causes of illness and death in childhood, diarrheal disease and nutritional deficiencies. Health education will be stressed in this field. Through promotion of the development of water supply systems the Pan

American Health Organization will also be working toward the improvement of the health of mothers and children. Better education, housing, and standards of living will all play a part in improving maternal and child health.

The provision in each community of a safe water supply system would reduce disease and death rates and improve health conditions. At present the most important part of the environmental sanitation program is promotion of the construction of water supplies. This not only requires major efforts such as were given to malaria eradication but has similar implications for the national economy in the Americas. The Pan American Health Organization can help countries in accomplishing this objective by giving sound administrative, legal, financial, and engineering advice. The Organization is in a position to develop among both international and national banks and agencies for technical cooperation an understanding of the long-term gains which could be made possible through their financial and technical support for the development of water supply systems.

B. RESEARCH

In coordinating international research in the Americas the Organization must exercise greater leadership in the future. It has already made valuable contributions in research on protein malnutrition, on vitamin deficiencies, and on goiter. It has entered into studies on the zoonoses, which affect both animals and man, and on foot-and-mouth disease which causes serious economic loss of cattle. As an aid to the malaria eradication program, research is being carried out on new malarial drugs and on the resistance of mosquitoes to insecticides. Studies of jungle yellow fever and vaccination against the disease are continuing. The Organization has collaborated in investigations of the vaccination of populations with live virus vaccine against poliomyelitis and in establishing a tissue culture laboratory for serological and viral studies.

As soon as research provides new knowledge on which to base methods of treatment and prevention, the Organization is in a position to promote the application throughout the region. At present, recent findings from research in tuberculosis, leprosy, poliomyelitis, radiological health, and nutrition should be more widely disseminated.

To improve the methods and tools for carrying out many programs, operational research, both basic and applied, is necessary in the field and in the laboratory. In the future this type of research will be continued but in addition the Organization must also be concerned with fundamental problems which either are more easily resolved by international cooperative studies or which cannot be solved locally because of limitations in the research potential. The Organization, in its coordinating role, can stimulate and initiate new studies and coordinate existing research by furthering the training of personnel, by assisting countries in developing their research organizations, by participating in the planning and developing methods of research particularly applicable to international health problems. Many important problems can be more easily solved by combined efforts. There is a variety of services such as standardization of materials, techniques, definitions, and terminology which are essential to scientific progress and which can be secured only through action on an international scale.

The diversity of social, economic, climatic, and cultural conditions in the Americas will make possible cooperative investigations of the relation of these factors to specific health problems. Such studies on a geographical basis should add to the knowledge of the epidemiology of diseases and bring closer their control.

C. EDUCATION AND TRAINING

The Pan American Health Organization gives high priority to the education and training of personnel for health and medical services in the Americas. Trained personnel represent a long-term investment for a country. Educational opportunities must be increased in practically every health specialty—medicine, nursing, sanitary engineering, dentistry, veterinary medicine, and many others. Many times the present number of health workers need preparation.

This report contains information on the present numbers of personnel in the major health professions in the Americas. Only limited data are available for presentation. A thorough survey of the field is essential to evaluate the present situation in each country and to plan for expansion in the future. In addition to the lack of sufficient trained personnel, there are also serious deficiencies in the type and amount of education provided. However, the quality of the education and training offered to health workers is more difficult to assess and there is no doubt that standards of many schools and universities could be raised. Such training should be adjusted to existing needs and conditions. The philosophy of the Organization is that schools must be strengthened and improved to develop the professional individual so that he is capable of intelligently carrying out his responsibilities in the society in which he serves.

In this field the Organization has made progress. An increasing number of fellowships are being awarded each year for study, and assistance is given to countries in improving their educational facilities. A more aggressive approach must be taken to train professional workers sufficient in number for the many activities in which they could profitably be used, that is for health services, for eradication and prevention of disease, for international research, and for the application of available health measures. Most countries should be able to offer adequate opportunities for education to their staffs or potential staffs of health workers and to provide opportunities for study abroad to leaders and research workers in the health professions.

The Organization hopes to establish a special fund in education to be financed by governments through ministries of health and education and through universities, by private foundations and through contributions by persons interested in developing educational facilities. Through such a fund, schools of medicine, public health, nursing, sanitary engineering, dentistry, and others could be offered assistance in improving their facilities and faculties. This program would increase the opportunities available to many persons in the Americas and would facilitate a greater interchange of ideas and experience through personal contacts of professors and other leaders within the region.

The Organization as an intergovernmental agency is in a unique position to coordinate activities to promote education in the health specialties in the Americas.

D. INTERNATIONAL PERSONNEL

To carry out the activities of coordination and promotion of health services throughout the Americas, the Organization must have a well-qualified and trained staff of leaders in specialized fields who are prepared to assist governments with their health problems. To carry out adequately the recommended programs for improving health conditions and preventing and eradicating disease, an enlarged professional staff is necessary. Any expansion in the number of professional workers requires increases in supporting services.

Three groups of professional personnel are being utilized by the Pan American Health Organization. The first is a rather small, permanent, and experienced staff responsible for the planning and direction of the program of the Organization. The second includes specialists employed for definite periods of time for specific projects in the countries of the region. The composition of this group by profession changes as projects are completed and new ones initiated. The third group consists of highly specialized and experienced consultants who for short periods survey particular problems and recommend the action to be taken by the Organization and member countries. It is in these latter two groups that the greatest expansion is anticipated.

Recruitment and training of personnel needed for international health work present special problems. Certainly, to be able to advise a government a consultant requires more maturity than would ordinarily be necessary in a comparable situation in his own country. Establishment of an equitable salary scale is difficult when staff come from countries with widely varying income levels.

A health worker coming to the international field needs additional training, in various degrees, to do his job effectively. For some additional technical preparation may be necessary which is available in a variety of institutions. Often technical training is already at a satisfactory level. Even then it is important to give these persons a broader perspective of problems in other countries, a global view of health, and a deeper appreciation of what the solution of the health problems of any country may mean to its neighbors as well as to itself. An organized program to accomplish the variety of training needs is essential. As a complement to existing training facilities, one or more places should be established where the international aspects of the tasks can be brought out and where these aspects can be studied in greater depth. Resources and support will be needed by the Organization to defray the cost of such training, both in regard to putting the teaching program on a firm basis and in covering the expenses of students. A corollary aspect has to do with language instruction. Obviously an international worker to be effective needs to speak the language of the country where he is working. Many more competent international health specialists could be recruited if there were means for giving them adequate language training before going on the assignment. A training program could well be established for international health workers in which provision is made for all of this additional training.

A true career service in international health could be developed in which not only mature specialists could be used but young health workers without experience could be given training and assignments

of increasing responsibility. Provision should also be made for advanced education and refresher courses to keep staff members abreast of current problems.

International health activities, to meet the many major problems presented in this report, will certainly expand in the foreseeable future. A comprehensive program for the recruitment and training of the personnel needed is basic to progress.

E. SUMMARY

The future role of the Pan American Health Organization will be one of coordination and leadership in meeting the changing health needs in the Americas. The relative importance of health problems in the Americas will constantly change. The day is not far distant when communicable diseases, to which much of the Organization's resources are now devoted, will be of relatively minor importance. In their place greater emphasis on chronic diseases and environmental health can be anticipated. New problems will require new methods of attack and greater knowledge. Basic and applied research will assume a far greater role in the work of the Organization than has been the case in the past and it will take its place among the other major activities of the Organization.

The Organization will strive in every phase of the evolution of health services in the Americas to assist in improvement of the national health services. It will try to stimulate the building of strong health services, working toward their integration in community development and stressing health as an important component in the social and economic growth of a country. Education and research activities will become of increasing importance within the overall program of the Organization.

The Pan American Health Organization can promote cooperation of international and national agencies to further the improvement of health in the Americas. Close coordination with other international and inter-American specialized agencies in fields of education, agriculture, welfare, housing and health is essential in a broad approach to improve socioeconomic conditions.

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